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CURRENT PROCEDURE IN MANAGEMENT OF OBSTRUCTION OF SMALL INTESTINE

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The mortality associated with acute obstruction of the jejunum or ileum has progressively improved since the 40% figures seen before Wangenstein's introduction of nasal suction siphonage. The most recent available figures suggest a mortality rate of about 11%.¹ Although the occurrence of ileac obstruction is therefore not as catastrophic now as it formerly was, it still commands a very real risk and is worthy of most thorough consideration.

Failure of the small intestine to transport and handle material normally may be due either to actual mechanical obstruction to the lumen thereof or to paresis of the musculature of the intestine. The latter condition is seen in inflammatory reaction surrounding the involved segment or occurs reflexly in association with such conditions as renal colic or retroperitoneal hematoma. It is with mechanical complete acute obstruction that this paper is concerned.

The anatomical factors underlying such obstruction, in the approximate order of frequency, are: (1) external hernias, (2) adhesions and adhesive bands, (3) intussusception, (4) gallstone obstruction, (5) volvulus, (6) internal hernias, and (7) neoplasms. This list does not include neoplasms that have disseminated throughout the peritoneal cavity, engaging the small intestine sufficiently to produce obstruction.

PATHOLOGICAL FEATURES

Pain.—There is no sensation of pain from the wall of the intestine upon crushing (unless nerve trunks are involved), or upon cutting or burning, but it is highly sensitive to stretching. When obstruction occurs, the peristaltic activity of the intestine above it brings fluid and gas in quantity to produce distention first of the area just above the block but ultimately all the way to the duodenum. It is the stretch due to this distention that is responsible for the typical pain of small intestine obstruction. There is support for the thesis that the waves of propulsive activity in the intestine come with somewhat greater fre-

quency high in the ileum than lower down. In practice, an obstruction high in the ileum appears to be characterized oftener by a period of three to five minutes between peaks of crampy pain, and obstruction in the terminal ileum intervals between the pains that are as much as twice as long.

Tension on the root of the mesentery produces diffuse pain, which is noted maximally across the abdomen in some cases and maximally across the back in others. Rapidly developing edema or hemorrhage into the mesentery or retroperitoneally appears in some cases to be the only tenable explanation of back pain. Incomplete disappearance of pain in the abdomen between the cramps of ileac obstruction may be due, therefore, to rapid distention or to tension on or rapid swelling of the mesentery, which is seen especially in strangulating intestinal obstructions.

Borborygmus.—The term "borborygmus" means any intestinal sound due to flatus whether it is produced in normal or in abnormal circumstances. In the presence of supraobstruction, the stretch on the ileac wall is associated with a pitch of sound that is higher as the degree of tension is increased. In general, sounds above high C (512 vibrations per second) are heard in clinically developed obstruction of the ileum. Under this circumstance, a listener usually hears with his stethoscope a rush of splashing, gurgling sounds that start at a low pitch but in the course of half a minute or so rise to the high-pitched "tinkles" described. Arrival of a wave of peristaltic activity at the supraobstruction site of distention determines therefore both the peak of pain and the high-pitched borborygmi. The coexistence of these phenomena establishes the diagnosis of obstruction of the small intestine in more than 9 out of 10 cases.

Vomiting.—In the presence of small intestine obstruction, there is increased irritability of the intestine that is most distended, and retrograde peristalsis occurs with dumping of the intestinal content into the stomach, from which much of it is vomited. The import of vomiting

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Read before the Section on Surgery at the 102nd Annual Meeting of the American Medical Association, New York, June 4, 1953.

1. (a) Dennis, C., and Brown, S. P.: Treatment of Small Bowel Obstructions, *Surgery* 13: 94, 1943. (b) Beecker, W. H.: Acute Appendicitis: Study of 412 Cases with Particular Reference to Abuse of Tube Decompression in Treatment, *Surg., Gynec. & Obst.* 95: 472, 1952. (c) Nemar, P.: Intestinal Obstruction: Ten-Year Statistical Survey at Hospital of University of Pennsylvania, *Ann. Surg.* 135: 367, 1952.

as a component of the picture depends primarily on the level of obstruction. The reasons for this are apparent on review of the estimated volumes of fluid that pass a given point per day, as shown in the table.

An obstruction high in the ileum will result in huge losses of water, sodium, and chloride and some loss of potassium. In adults, the over-all effect is one also of alkalosis, as usually the loss of sodium is less than that of chloride. An obstruction in the terminal ileum is associated, on the other hand, with relatively little severe privation of fluid and salts, for most of the upper intestinal secretions are reabsorbed, at least in the first few days.

In patients, as in dogs experimentally, the vomitus begins to assume a fecal character in $3\frac{1}{2}$ to 4 days after complete obstruction is established.² This is related to the length of time the material remains in the presence of the bacterial activity of the intestine, and is virtually unrelated to the level in the intestine at which the block has been established. An example is the fecal vomiting seen in obstruction of the distal loop in poorly patterned gastroenterostomy.

Dehydration.—From what has been noted above, it is apparent that dehydration is slow to develop in terminal ileac obstruction. It may be overwhelming, however, in two to three days in high ileac or jejunal obstruction.

Daily Volumes of Fluid That Normally Pass Several Levels of the Intestine

Level of Intestine	Vol. of Fluid
Duodenojejunal junction (ingested fluid, secretions of salivary, gastric, and duodenal glands, and of liver and pancreas)	8-10 liters
Middleum	8-10 liters ?
Ileocecal junction	0.5 liter

Distention.—Clinical distention as a consequence of obstruction is apparent in relation to the sum total of increased visceral volume. The jejunal obstruction is associated with distention of a short segment of intestine, and clinical abdominal distention is not marked. As one considers cases with blocks at progressively lower levels in the ileum, the length of intestine involved in distention is progressively greater and the degree of abdominal distention is usually progressively more pronounced.

Roentgen Findings.—The roentgen findings on flat and upright scout films of the abdomen are diagnostic in approximately five cases out of six. The ladder-like arrangement of gas-filled segments is a familiar picture. In obstruction of increasing duration, the ratio of gaseous to fluid content decreases, until there may be virtually no apparent gas at the end of seven or eight days.

Obstipation.—Failure of passage of gas or stool by rectum may not occur until one or two days after obstruction is established. Failure of return of anything more than the injected enema fluid thereafter is support for the diagnosis of obstruction.

Shock.—Depression of blood pressure, rapid, thready pulse, cold extremities, and collapse may result from withdrawal of a large share of the blood volume from the circulation. This may occur in acute strangulating obstructions involving more than one-third of the small intestine, in which the strangulating mechanism, whether a narrow hernia neck, a heavy adhesive band, or other agent, closes off the easily compressible veins before closing the more difficultly compressible arteries. As a consequence, blood is trapped in the involved segment, with hemorrhage and engorgement. When strangulation becomes established after several days of vomiting and privation, involvement of smaller segments of intestine may bring about shock, for under these circumstances there is already contraction of blood volume before strangulation takes place.

Signs of Peritoneal Irritation.—Escape of blood or of exudate into the peritoneal cavity causes sufficient reaction to produce clinical findings of parietal peritoneal irritation, such as abdominal spasm, tenderness to palpation, and rebound tenderness. Along with such localized findings, elevation of temperature and leukocytosis commonly accompany the inflammatory responses to strangulation.

CAUSES OF DEATH

The lethal factors fall naturally under three general headings: (1) salt and water imbalance, (2) strangulation and consequences thereof, and (3) prolonged distention with toxic absorption. It is apparent that the large water and salt loss of obstruction high in the small intestine must quickly lead to profound dehydration, salt loss, and alkalosis, with sunken eyes, loss of skin turgor, and dry and sticky tongue. The absence of sufficient water for adequate renal function is followed in but a few days by uremia as well. These factors are lethal if uncompensated.

The mechanisms by which strangulation may be lethal are dual. Shock, as indicated, may suffice. Gangrene may lead to perforation and peritonitis if the segment in question is in the peritoneal cavity, or to sepsis and possibly death if it is not in communication with the abdominal cavity, as in femoral hernia.

Prolonged distention has been known to alter the normal semipermeability of the intestinal mucosa since Sperling showed that a sustained tension of 15 cm. of water in the dog leads to vascular stasis and changes in the histology of the membrane,³ lowering the viability of the intestine and opening an abnormal avenue of absorption, namely, the transperitoneal route. Poth and Knotts demonstrated that the products so absorbed are chiefly of bacterial origin, for they showed that the placing of succinylsulfathiazole in closed loops in the dog prolongs survival five fold.⁴ R. M. Nelson has demonstrated that the products of the paracolon bacillus are among the factors involved and has worked out a technique of titrating the amount of the exotoxin of this organism in the blood stream of the dog in response to ischemia of the bowel wall.

PROPHYLAXIS AGAINST OBSTRUCTION

Certain definitive steps can be taken in the prevention of obstruction of the small intestine. It is obvious that external hernias, particularly femoral hernias, should be

2. Dennis, C.: Oblique, Aseptic, End-to-End Ileac Anastomosis, Procedure of Choice in Strangulating Small Bowel Obstruction, Surg., Gynec. & Obst. 77: 225, 1943.

3. Wangenstein, O. H.: Intestinal Obstructions, ed. 2, Baltimore, Charles C Thomas, Publisher, 1942.

4. Poth, E. J.; Knotts, F. L.; Lee, J. T., and Inui, F.: Bacteriostatic Properties of Sulfanilamide and Some of Its Derivatives: I. Succinyl-sulfathiazole, New Chemotherapeutic Agent Locally Active in Gastrointestinal Tract, Arch. Surg. 44: 187 (Feb.), 1942.

carefully sought in routine physical examinations, and repair advised wherever obstruction is considered a possibility.

Inasmuch as postoperative adhesions are the second most important etiological agent in production of small bowel obstruction, the means to prevent them must be carefully considered. As in my experience, Nemir¹⁰ found the vast bulk of adhesive obstructions to be after-maths of operations for gynecological problems, for appendicitis, and for idiopathic ulcerative colitis. In one period of review, I found that more than half of all strangulating obstructions at the University of Minnesota Hospitals followed laparotomy for gynecological procedures.

Appendicitis with extension is notorious for production of manifestations of obstruction at the time of the acute process, but in those cases in which the policy was formerly to utilize conservative management, it was almost regularly observed that exploration for appendectomy six weeks later revealed no residual adhesions. One cannot escape the suspicion that the surgeon rather than the disease process is responsible for the late obstructive manifestations so commonly seen.

The surgical world was alerted to the dangers of talcum powder by Antopol⁵; and talc has been eliminated as a lubricant for surgeons' gloves by a large share of the hospitals in the country. Studies on adhesion formation at the University of Minnesota showed indeed that excoriation of the terminal ileum over a 12 in. (30 cm.) segment, followed by application of phenol or painting with 7% iodine solution was not productive of obstructive adhesions. Injection into the unopened abdomen of the dog of washings from two pairs of talc-treated surgeons' gloves was usually lethal, the mechanism being death from adhesion obstruction.⁶ Talcum powder has been replaced in many hospitals by a partially hydrolyzed starch preparation, which is known to be removed by the body and to cause many fewer adhesions than talc.⁷

One cannot assume, however, that hydrolyzed starch is wholly innocuous if placed in the abdomen, for the most ubiquitous adhesions in my experience were seen on re-exploration within two weeks after a laparotomy in which it was known that this agent alone had been left and only in small amount. The avoidance of deposition of any powder at all in the abdomen seems the safest prophylaxis against adhesion formation on this basis. Removal of glove powder by washing in a glove basin containing water or solution of some kind is common practice and is inadequate, for if one completes such a wash and watches as the gloves dry in room air, much of the powder may be seen still on the glove surface; especially is this true if several persons have preceded the observer in use of the powder basin. The most casual observation will convince the critical of the superiority of utilization of a wet abdominal pack for actually wiping the gloves clean, or preferably two packs in series (fig. 1). Prompt change of torn or punctured gloves during operations is obviously important from this point of view as well as from that of infection.

Additional factors in the prophylaxis of adhesions that are apparently of particular importance, especially in the early postoperative period, are the rigid avoidance

of unnecessary trauma and attention to hemostasis. Rhoads and his associates have shown that clean, sharp dissection produces far less adhesion formation than blunt dissection.⁸ Precise hemostasis is possible in most laparotomies with greater ease by the proper use of the coagulating current than by the customary clamp-and-tie technique. Reexamination of wounds in the experimental laboratory has confirmed this impression. The simplest procedure utilizes a fine-tipped hemostat such as a mosquito clamp or an Adson clamp for precise grasping of the bleeding vessel and coagulation by means of a cord clipped to the handle of the hemostat. Current is most easily controlled by the surgeon through the foot switch of the diathermy machine. Some practice is required to gain proficiency in the method and a non-explosive anesthetic agent should be employed, but the dividends are real. There has been almost no adhesive obstruction after colectomy for idiopathic ulcerative colitis in my experience since adoption of this technique eight years ago.⁹



Fig. 1.—Proper method of removing glove powder before operation. Rinsing in a wash basin is dangerous because removal of powder is incomplete. Best results follow use of two cloths.

MANAGEMENT OF ACUTE OBSTRUCTION OF SMALL INTESTINE

For many years, I was a member of Wangenstein's staff at the University of Minnesota. A concerted effort was made by that group as a whole to evaluate fully and critically the role of nonoperative management of those cases of acute complete small intestine obstruction that failed to present any of the following evidences of actual or impending strangulation: history of sudden onset

5. Antopol, W.: Lycopodium Granuloma, Its Clinical and Pathological Significance Together with Note on Granuloma Produced by Talc, *Arch. Path.* 16: 326 (Sept.) 1933.

6. Minge, R. K., and Dennis, C.: Effect of Diathermy upon Abdominal Adhesions; Experimental Study, *Ann. Surg.* 130: 937, 1949.

7. Lee, C. M., Jr., and Lehman, E. P.: Experiments with Non-Irritating Glove Powder, *Surg., Gynec. & Obst.* 84: 689, 1947.

8. Thomas, J. W.; Greene, J. W., Jr., and Rhoads, J. E.: Experimental Study of Factors Affecting Development and Persistence of Intraperitoneal Adhesions, in *Surgical Forum*, American College of Surgeons, 1950. Wangenstein, O. H., and others, editors, Philadelphia, W. B. Saunders Company, 1951, p. 125.

9. Dennis, C., and Karlson, K. E.: Surgical Measures as Supplements to Management of Idiopathic Ulcerative Colitis; Cancer, Cirrhosis and Arthritis as Frequent Complications, *Surgery* 32: 892, 1952.

(suggested by McKittrick and Sarris¹⁰); back pain, shock, signs of peritoneal irritation, fever, leukocytosis, bloody intestinal drainage, palpation of "soggy" loops on bidigital pelvic examination¹; evidence of hernia; and obviously strangulating mechanisms such as intussusception and gallstone obstruction.² In addition, each patient was reexamined and his condition reevaluated every four to six hours during the period of conservative management, and appearance of any one of these signs removed him to the operative group. The only other indications for operation were failure to decompress the intestine by intubation and failure of the obstruction to relent after decompression had been accomplished.^{1a}

The results of concerted attention to this policy were gratifying indeed, and in the last year for which data are available to me, there were 2 deaths in 27 patients—a statistically insignificant rate of 7.4%.^{1a} The difficulties in such a pattern arise from the observation that remarkable enthusiasm on the part of highly trained and experienced personnel is absolutely essential to maintain a sufficiently informed and alert watch on these patients. They arise, in addition, from such experience as mine; in two of my personal patients, both physicians, ultimate exploration because of failure to relent revealed strangulating mechanisms. Both men recovered, but it was the consensus that their risks would have been less and their hospitalizations shorter with earlier exploration.

To support the change in point of view toward early operation, several advances have contributed to the safety of that intervention. Some of these are as follows:

(1) Smith and Brackney's rapid method of peroral intubation of the small intestine¹¹; (2) Wangenstein's

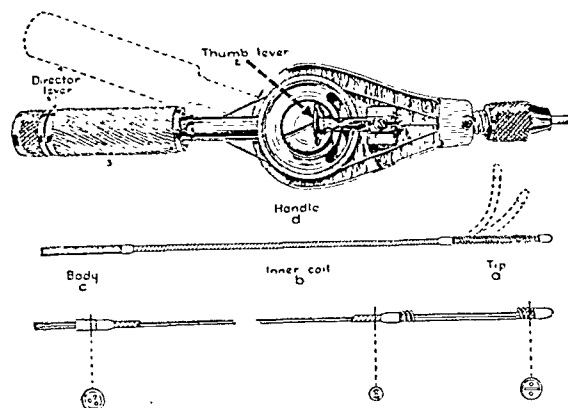


Fig. 2.—Flexible stylet with controllable tip of Smith and Brackney. After insertion of plastic tube on the stylet into the stomach, the tip can be directed to the pylorus under fluoroscopic control. (Reproduced from *Surgery* [27: 817, 1958] by permission of the publisher.)

technique of aseptic decompression of the distended intestine³; (3) my demonstration that healing of anastomotic lines in distended small intestine occurs smoothly and consistently if appropriate techniques are employed²; (4) removal of the entire block of contaminated tissue from the patient in certain types of obstruction; (5) the

antibiotics; and (6) removal of the fear of production of new adhesions by surgical intervention.

Preparation of the Patient for Exploration.—With the decision that in virtually all cases of acute complete obstruction of the small intestine exploration should be done on admission of the patient to the hospital, certain additional measures for preparation are in order.

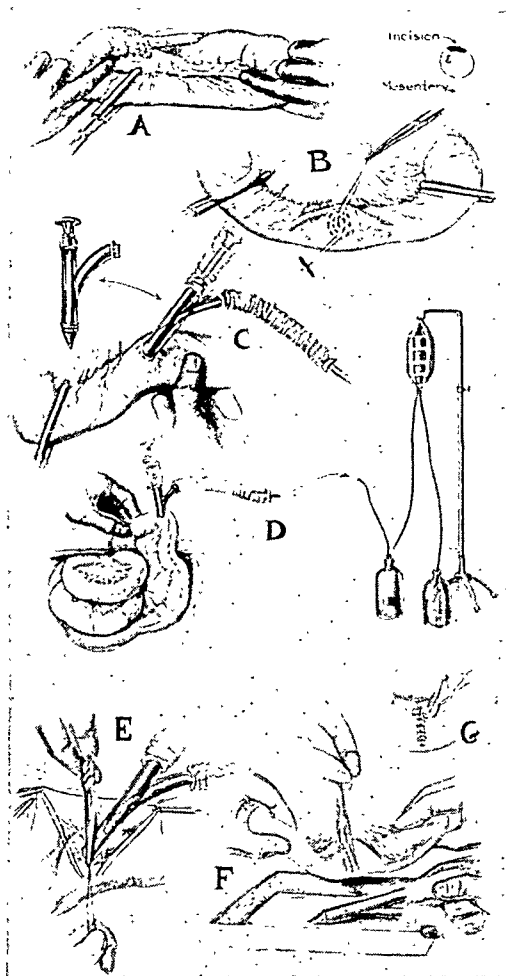


Fig. 3.—Modified Wangenstein aseptic decompressive suction enterotomy. A, method of emptying a distended segment of small bowel preparatory to enterotomy. B, placement of a double purse string to secure the bowel to the trocar. After placement of the purse strings, a 1 cm. incision in the center exposes the intact mucosa so that easy perforation will be possible with the plunger point. C, securing of trocar. Following perforation of the mucosa, the plunger is withdrawn and the catheter is slipped into the bowel. D, suction decompression. Very gentle lifting of the segments of bowel will direct content to the catheter. The entire small bowel can be delivered and emptied by this means, particularly if a three-foot catheter is employed. E, clean removal of the trocar. F, closure of the defect. G, completion of closure. The closure process may be eliminated altogether in strangulation if a segment is employed close enough to the necrotic bowel to permit block excision of the entire area with immediate anastomosis. (Reproduced from "Operative Technic in General Surgery," edited by W. H. Cole, as modified from "Intestinal Obstructions" by Wangenstein, with permission of Charles C Thomas, Publisher.)

If frank clinical dehydration is present, it may be reasonably assumed the patient has lost water equal to from 5 to 7% of his original body weight. Since the bulk of the fluid lost is vomitus, which contains about one-half the concentration of sodium chloride in plasma, this fraction of the body weight should be given in 0.45% sodium chloride solution containing 2.5% dextrose in the first few hours, with addition of the estimated daily require-

10. McKittrick, L. S., and Sarris, P. S.: Acute Mechanical Obstruction of Small Bowel; Its Diagnosis and Treatment, *New England J. Med.* 222: 611, 1940.

11. Smith, G. A.: Study of Intestinal Intubation Using Flexible Stylet with Controllable Tip, *Surgery* 32: 17, 1952.

ment the first day. One-half this amount, or 3% of the body weight can safely be given the first hour, under the circumstances, while intestinal intubation is being undertaken and the initially drawn blood is being analyzed for sodium, chloride, potassium, bicarbonate, and total protein concentrations, and the balance, or the second 3%, given during the operation and the ensuing four to six

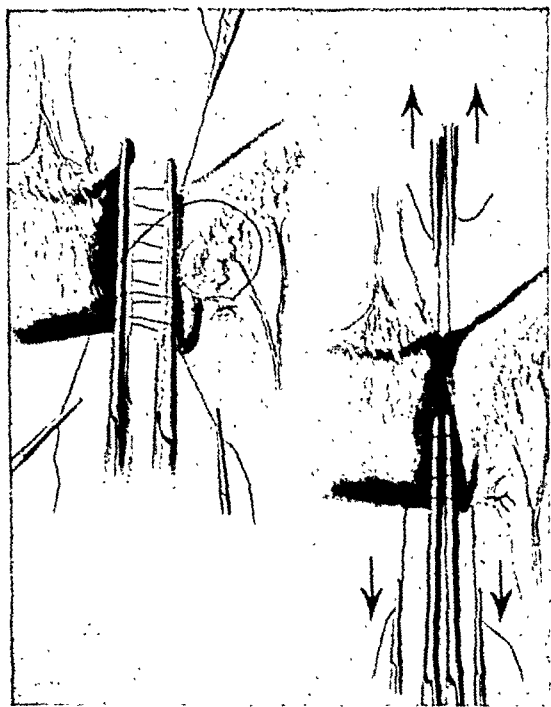


Fig. 4.—Placement of the anterior running catgut suture. The clamps have been rolled together. Removal of clamps. Tension is applied to the two ends of each of the running sutures, the clamps are carefully loosened until the tips are spread 1 or 2 mm., and the clamps are cautiously removed. (Reproduced from *Surgery, Gynecology and Obstetrics* [77:25, 1943] by permission of the publisher.)

hours, with such alterations as may be dictated by the laboratory results. Lesser degrees of dehydration may be estimated clinically and by evaluation of the chemical determinations and corrected less vigorously.

Rapid Intubation of Small Intestine.—The method of Smith for the intubation of the small intestine depends on fluoroscopic control and a flexible stylet with a controllable tip (fig. 2). In Wangenstein's clinic, Smith was able to intubate the small intestine within one hour in 90% of 180 cases, most of which were cases of intestinal obstruction. Utilization of this method usually permits the surgeon to explore the abdomen within two to four hours of admission with a major share of the distention relieved. If the abdomen is opened in the presence of a good deal of residual distention, the Smith tube can usually be advanced under the manual control of both the surgeon and the tube operator, ordinarily with complete emptying of the intestine.

Aseptic Decompression at Laparotomy.—In certain instances the degree of distention prohibits passage of even the Smith tube, and the status of the bowel on laparotomy suggests it is too tense and friable to permit manipulative introduction of the Smith tube at that juncture. Under these circumstances, or when the Smith tube is not at hand, employment of a modification of the Wangenstein aseptic decompression technique^{12a,b} upon

the most distended segment that first comes to view regularly permits complete emptying down to the point of obstruction (fig. 3). Even if an adhesive band has cut into the bowel, it can be freed without gross spillage and proper repair accomplished.

Primary Anastomosis.—I reported 10 years ago a series of experiments in which dogs subjected to low ileac obstruction were relieved after three to eight days by resection of the area of block and primary end-to-end anastomosis. There was one failure in 16 dogs, an instance in which an obvious technical error was made. There were 2 deaths among 16 resections in clinical patients suffering from strangulating obstructions, neither owing to anastomotic failure. The technique employed was dependent on such a closed oblique anastomosis that unsullied serosal surfaces were approximated by interrupted sutures (fig. 4). Microscopic studies indicated that healing was as satisfactory in intestine previously distended by obstruction as in undistended intestine.²

The coming of the antibiotics has increased the safety of this procedure, and may indeed have lessened the need for closed anastomosis in elective cases. In emergency cases in which the adequacy of intestinal antisepsis is at best equivocal, it remains to be shown that any other method can match the security of the closed technique. The method is apparently most secure as a one-layer silk approximation. The germ of the method is shown in fig. 4, but earlier articles describe the complete technique.^{12a,c}

ANTIBIOTICS

Studies of Poth and his associates have led to recognition of a whole series of agents that are effective in destruction of intestinal pathogens.⁴ Some of these, such as neomycin, are reported to sterilize a segment of intestine in 20 minutes.¹³ The survival period in experimental strangulating obstruction is markedly prolonged also by intravenous administration of some of the antibiotics, such as chlortetracycline (Aureomycin).¹⁴

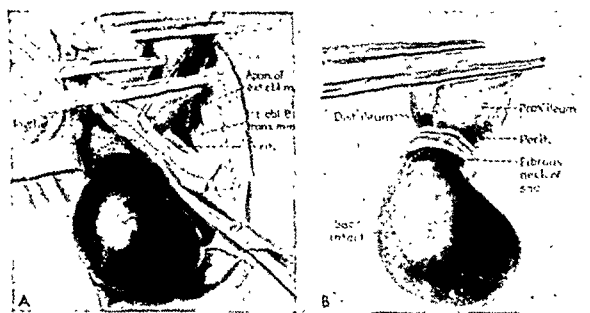


Fig. 5.—Repair of femoral hernia with gangrenous bowel. A, separation of neck of sac with retention of intact fibrous ring. B, femoral hernia sac removed intact with fibrous ring of neck and contained necrotic intestine. Reconstruction of the inguinal region was straight-forward. In one of nine cases, the hernia recurred a year later. (Reproduced from *Surgery*, [22:312, 1947] by permission of the publisher.)

It is comforting to know that the period of requirement of absolute preservation of the serosa from contamination by intestinal contents has apparently passed. It is

12. (a) Dennis, C.: *Surgery of Small Intestine, Operative Technic in General Surgery*, Cole, W. H., editor, New York, Appleton Century Crofts, Inc., 1949. (b) Wangenstein² (c) Dennis.²

13. Poth, E. J.; Fromm, S. M.; Wise, R. I., and Hsiang, C. M.: Neomycin, New Intestinal Antiseptic, *Texas Rep. Biol. & Med.* 8: 353, 1950.

14. Morton, J. H.; Furth, F. W.; Hinshaw, J. R., and Schilling, J. A.: Use of Aureomycin in Experimental Intestinal Obstruction, *Ann. Surg.* 134: 1007, 1951.

platitudinous on the other hand to state that minimization of such contamination, and intravenous employment of chlortetracycline or oxytetracycline (Terramycin), from the time of admission to the hospital combine to make the ordeal as safe as possible.

Block Resection of Contaminated Fields.—The block resection of the intact sac and contents in gangrenous femoral hernia with utilization of primary end-to-end intestinal anastomosis has reduced the mortality in this lesion from 60% to the neighborhood of 10% (fig. 5).¹⁵ It is a technique that is applicable, though with considerable difficulty, to strangulating inguinal hernia as well.

The same principle applies to the resection of intussusceptions too difficult to reduce, in which the risk of resection is less than that of persistent efforts to achieve reduction.¹⁶ In the original series reported, there were no deaths in 10 cases of such resection, but one patient died in the year subsequent to that report.

Removal of Fear of New Adhesions.—As indicated under prophylaxis, proper management during laparotomy should minimize the risk of fresh adhesion formation secondary to exploration for intestinal obstruction.

SUMMARY

The etiological and physiological factors involved in obstruction of the small intestine must be fully appre-

ciated to permit successful management by any program of therapy. Although it has been shown possible to achieve a low mortality rate in the management of acute complete obstruction of the small intestine by non-operative means, there are still cases of strangulation that are not recognizable without exploration. When acute complete obstruction of the small intestine is not known to be associated with complete fixation by adhesions, exploration should be done in the two to four hours after hospital admission.

New developments have made risks of such early intervention small by former standards. These are the Smith-Brackney rapid method of intubation of the small intestine, Wangenstein's aseptic decompression, the methods of primary anastomosis in the face of obstruction, the removal of the entire contaminated area of tissue en bloc in certain types of strangulation, the coming of the antibiotics, and refined surgical methods for the removal of fear of production of new adhesions by surgical intervention.

989 Edgewood Ave.

15. Dennis, C., and Varco, R. L.: Femoral Hernia with Gangrenous Bowel, *Surgery* 22: 312, 1947.

16. Dennis, C.: Resection and Primary Anastomosis in Treatment of Gangrenous or Non-Reducible Intussusceptions in Children; Safe, Simple, One-Layer Silk Anastomosis, *Ann. Surg.* 126: 788, 1947.

ROENTGEN STUDIES IN SUPPURATIVE PNEUMONIA OF INFANTS AND CHILDREN

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and

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Acute suppurative pneumonias have long been recognized as a problem of major importance to the pediatrician. This type of pulmonary disease finds its greatest incidence and mortality in infants and young children. Although its over-all incidence is estimated¹ to account for less than 10% of all childhood pneumonias, it probably causes more deaths than other forms of inflammatory reaction in the lungs. In a series of cases reported by Watkins² and associates in 1948, the mortality was 57% for children of all ages and 100% for infants.

The greater morbidity of suppurative pneumonia is attributable to the overwhelming toxicity, the tendency to form pulmonary abscesses, the pleural complications, and metastatic phenomena. In spite of the effective control of pneumonic infections by antibiotics, however, a

relatively high mortality from suppurative pneumonias continues. Since the development of penicillin, the mortality rates have been reported as reduced to 33% for children and 40% for infants.³

As a corollary to this, roentgen examination of infants and children currently hospitalized for respiratory infections has shown a steady decline in the number of primary alveolar pneumonias and an increase in the proportion of patients showing the roentgenographic characteristics of suppurative pneumonia. This paper will emphasize the principal signs by which suppurative pneumonias may be recognized roentgenologically and will evaluate their specificity.

MORPHOLOGY

Morphologically, pneumonias have been classified³ as primary alveolar, when the involvement is limited to the alveolar spaces, and secondary interstitial, when the supporting structures around the bronchi and air sacs are also involved. Suppurative pneumonias are of the latter type in that the infecting organisms invade the bronchial walls, peribronchial tissues, and interstitial structures as well as the alveoli. Alveolar pneumonia disables chiefly by reducing the patient's vital capacity through consolidation. Suppurative pneumonia adds to this the suffocating effects of bronchial edema and parenchymal necrosis.

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Read before the joint meeting of the Section on Pediatrics and the Section on Radiology at the 102nd Annual Meeting of the American Medical Association, New York, June 2, 1953.

1. Neuhof, H., and Thomas, A.: Acute Suppurative Bronchopneumonia, *Arch. Int. Med.* 75: 45 (Jan.) 1945.

2. Watkins, C. G.; Tichenor, R. W.; Robb, J. A.; and Forbes, G. B.: Treatment of Staphylococcal Pneumonia and Empyema with Penicillin: Report of 6 Cases, 2 with Pulmonary Pneumatocele, *Am. J. Dis. Child.* 76: 648 (Dec.) 1948.

3. Diagnostic Roentgenology, Golden, R., editor, Baltimore, Williams & Wilkins Company, 1952, vol. 2.

Whether one or the other types of inflammatory reaction will occur seems to depend largely on the type and pathogenicity of the etiological agent.

PATHOLOGY

The disease occurs chiefly by bronchogenous invasion. Studies made at autopsy⁴ suggest that the infection descends from the upper respiratory passages and spreads progressively into the peripheral portions of the bronchial tree. Extension continues by the lymphatics and interstitial tissues into the pulmonary parenchyma. Neuhof and Hirshfeld⁵ stress that this extension by the bronchial pathways accounts for the peripheral location of the suppurative lesion and the segmental distribution of the process. The tendency to involve bronchopulmonary segments gives rise to characteristic cone-shaped areas of parenchymal infiltration. The base of such a cone contacts a large pleural surface, which probably explains the high frequency of empyema in these patients.

In addition, multiple small coalescing abscesses clustered about the bronchioles in the lung periphery invite the formation of bronchopleural fistulas. The resulting tension pyopneumothorax may jeopardize the infant's life. In contrast, the pulmonary lesion of hematogenous origin rarely leads to such complications. Basically, the suppurative pneumonias show two general patterns. The first is an acute fulminating disease without tissue necrosis. The second is an acute suppurative process showing diffuse or local involvement of the lung pleura.

ETIOLOGY

The suppurative pneumonias in children are so frequently caused by *Micrococcus* (*Staphylococcus*) *pyogenes* var. *aureus* that many use the term as synonymous with micrococcic (staphylococcic) pneumonia. This may be the causative organism in the majority of instances, but there are notable exceptions. First, it has been pointed out that micrococcic pneumonias occur frequently as a complication of virus infections⁶ and epidemic influenza.⁷ In one series, about 50% of patients who died of epidemic influenza showed *M. pyogenes* in the lung cultures at post mortem.⁸ Likewise, in infants debilitated by fibrocystic pancreatic disease, the suppurative pulmonary complications are usually due to *M. pyogenes*. Less frequently encountered etiological agents are various streptococci, Friedländer's bacillus, *Proteus* organisms, and pneumococci. In addition, a very similar pulmonary process may occur in the acute suppurative phase of bronchogenous tuberculosis.

DIAGNOSIS

Only the isolation of the organism in pure culture directly from the lung or pleural cavity constitutes reliable proof of etiology. Nose and throat cultures are not positive evidence of micrococcic pneumonia. The incidence of such cultures is no greater than in unrelated conditions. In fact, sterile cultures may be obtained from the empyema fluid in some patients. This lack of correlation between the routine bacteriological tests and the type of pathological condition in the lungs makes it necessary for the pediatrician to rely on the clinical and roentgen studies for a working diagnosis in most instances.

Roentgenographic Features.—Several distinctive roentgenographic features are seen during the develop-

ment of acute suppurative pneumonia. These are not present in all patients, nor do they occur in any regular sequential order. Perhaps the most consistent feature is the rapidly changing roentgen picture. A roentgenogram of the chest may show an area of homogeneous pneumonic infiltration on one day and, after a short interval, reveal a large pulmonary cavity with a fluid level. After this, a large collection of fluid in the pleural cavity may completely obscure the parenchymal changes. This picture may again change to one showing tension pneumothorax and severe mediastinal displacement. These striking changes are of considerable importance because they frequently occur in the presence of an unchanging clinical course. At times, the paradoxical roentgen observations may be confusing to the clinician. In the presence of overwhelming toxicity, the roentgenogram

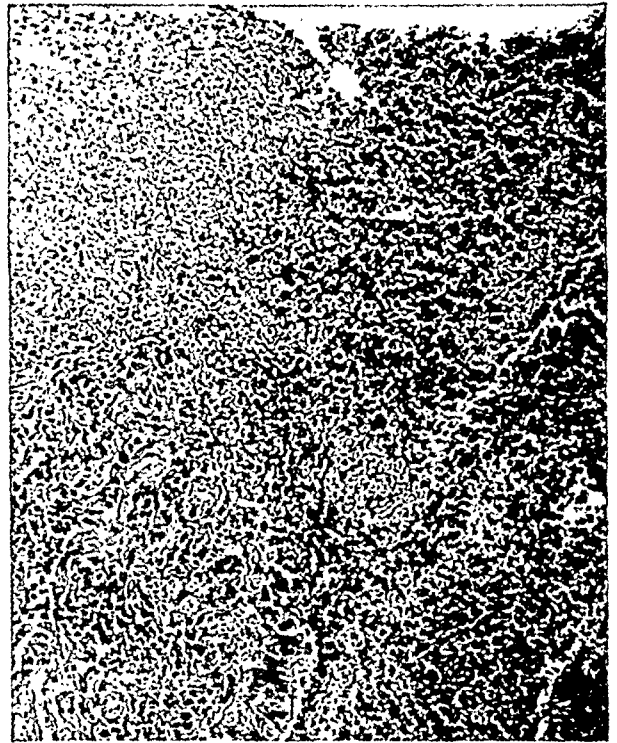


Fig. 1.—Histological abnormality of pneumatocele. The cyst is lined by exudate and a thin layer of granulation tissue. The bronchiole filled with exudate is continuous with the cavity where there is a break in the continuity of the bronchiolar wall. Elsewhere in the lung there are small abscesses.

may show only mild emphysema, while during convalescence the roentgen studies may show pulmonary and pleural invasions that are out of proportion to the clinical manifestations.

4. Reimann, H. A.: Primary Staphylococcic Pneumonia, *J. A. M. A.* 101: 514 (Aug. 12) 1933.

5. Neuhof, H., and Hirshfeld, S.: Suppurative Pleuritis in Children: Its Pathogenesis, Diagnosis, and Treatment, *Am. J. Dis. Child.* 44: 973 (Nov.) 1932.

6. Scadding, J. G.: Lung Changes in Influenza, *Quart. J. Med.* 6: 425 (Oct.) 1937.

7. Finland, M., Peterson, O. L., and Strauss, E.: Staphylococcal Pneumonia Occurring During an Epidemic of Clinical Influenza, *Tr. A. Am. Physicians* 56: 139, 15-1; Staphylococcal Pneumonia Occurring During Epidemic of Influenza, *Arch. Int. Med.* 70: 183 (Aug.) 1942.

8. Michael, M., Jr.: Staphylococcus Aureus Pneumonia with Special Reference to Its Occurrence as Complication of Influenza, *J. A. M. A.* 118: 869 (March 14) 1942.

Pneumatocoles.—A second characteristic roentgenographic feature of suppurative pneumonia is the appearance of one or more cyst-like hyperventilated rarefactions called pneumatocoles. According to Conway,⁹ these constitute a special form of emphysematous interstitial cavity. The pathogenesis of these pneumatocoles is suggested by the histological findings in surgical material (fig. 1). There is first a development of a peribronchial abscess that follows penetration of the bronchial wall by the invading organism. If a perforating bronchial communication occurs, the suppurative abscess is evacuated, and an air-containing cavity results in the interstitial substance of the lung. A check valve mechanism in the bronchial fistula permits rapid emphysematous inflation of this cavity. Shifting fluid levels due to purulent exudate within the cavity may appear and disappear roentgenographically during the course of the lesion.

Early in its formation, the pneumatocole may be lined with a loosely organized, rather thin layer of granulation tissue. This lining becomes progressively thinner as the cavity enlarges under tension. With further resolution



Fig. 2.—Pneumatocole in suppurative pneumonia. Classical thin-walled tension air cyst characteristic of suppurative pneumonia is seen in the right lung. There is emphysema of the remainder of the right lung.

of the inflammatory process, the classical thin-walled cyst is formed (fig. 2). The wall of these cavities will appear considerably thicker when they contain fluid. This appearance is more frequently seen early, and it is in this stage that they are mistaken for necrotic abscess. Pneumatocoles spontaneously disappear as infection subsides because of loss of the valvular mechanism in the bronchial wall with immediate reexpansion of the surrounding lung (fig. 3). This process, however, may require months.

According to Blumenthal and Neuhof,¹⁰ the sudden appearance of these cysts on the roentgenogram, which previously revealed no area of rarefaction, virtually proves the presence of micrococcic pneumonia when it occurs in an infant, and it makes the diagnosis probable when encountered in a young child. At times, pneu-

matocoles are mistaken for congenital irreversible bronchial cysts and are removed surgically. According to Caffey,¹¹ this error is unwarranted, since in his experience most cysts demonstrated roentgenologically in infants are acquired and disappear spontaneously.

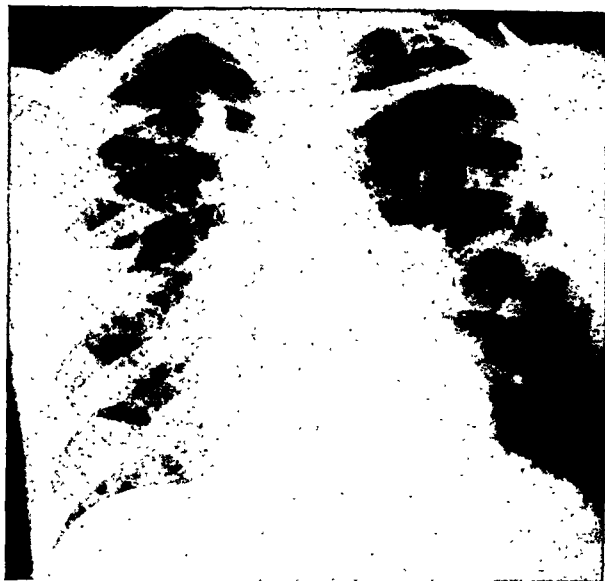


Fig. 3.—Parenchymal changes in suppurative pneumonia. Multiple pneumatocoles are present in both lungs. There is also segmental emphysema.

Infiltrative Features.—The parenchymal changes seen on roentgenographs are densities of the focal, segmental, or lobar type. Various combinations of these infiltrations are the rule, and these frequently give rise to bizarre images. The tendency for the parenchymal changes to correspond to the course of bronchi, blood

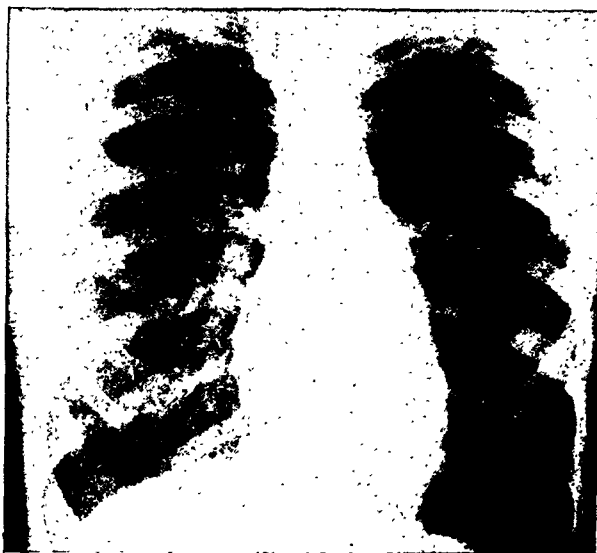


Fig. 4.—Pneumatocoles seen in figure 3 completely resolved after 14 months.

9. Conway, D. J.: Origin of Lung Cysts in Childhood, *Arch. Dis. Child.* 26: 504 (Dec.) 1951.

10. Blumenthal, S., and Neuhof, H.: Staphylococcic (Suppurative) Pneumonia in Infancy and in Childhood and its Surgical Aspects, *Am. J. Dis. Child.* 72: 691 (Dec.) 1946.

11. Caffey, J.: Natural Regression of Pulmonary Cysts During Early Infancy, *Pediatrics* 11: 48 (Jan.) 1953.

vessels, and the interlobar fissures indicates the presence of multiple inflammatory occlusions in the bronchi of the second and third order. When lobar areas of density do occur, they are more frequently due to confluent atelectasis than to pure consolidation. Because of the

bronchogenous spread, different roentgenologic stages of involvement are seen simultaneously, with changes disappearing in one lobe while they are developing in another.

The acute abscesses of suppurative pneumonia are tiny and multiple. When bronchial fistulas occur, they are converted into pneumatoceles. Otherwise, they are manifest roentgenologically as solid confluent densities



Fig. 5.—Tension pyopneumothorax in suppurative pneumonia. Sudden pleuropulmonary perforation gives this most characteristic roentgen picture in infants. The distended tension cavity displaces the mediastinum sharply to the left. The right lung is collapsed, but a pneumatocele is visible in the right cardiophrenic angle. There is an empyema fluid level across the right base.

rather than cavities. Typical chronic lung abscess rarely develops.

Pneumothorax.—As pointed out by Forbes,¹² the occurrence of a nontraumatic pneumothorax in an infant should immediately suggest the presence of an underlying micrococcic pneumonia. It is attributed to rupture of a tiny subpleural abscess or pneumatocele in check valve communication with a smaller bronchus. This type of bronchopleural fistula results in the development of empyema with alarming degrees of tension pneumothorax (fig. 5). It is more commonly observed in early infancy.

Small degrees of pneumothorax may be found early in the course of empyema formation in many infants if searched for on expiration films. The roentgen detection of such a perforating pleuropulmonary lesion should signify primary suppurative lung disease until proved otherwise. Similar results occur in cases of fibrocystic and xanthomatous infiltration of the lung, but here too, there is generally a complicating secondary suppuration.

Pleuritis and Empyema.—Pleural complications are of two types: diffuse and localized. The diffuse form develops in rapidly progressing suppuration. Tension pyopneumothorax takes place before adhesive pleuritis forms. If localized suppuration develops, however, the pleural disease is confined to the area of consolidation. A suppurative pleuritis ensues, with gradual formation

of pleural adhesions. The resultant empyema or pyopneumothorax is encapsulated. It is important not to mistake the encapsulated tension pleural cavities for pneumatoceles, since the former may require surgical management. It has been estimated by Forbes¹² that over 90% of infants under 6 months of age in whom empyema develops had micrococcic pneumonias.

Emphysema.—Segmental or diffuse forms of alveolar emphysema are a common feature of all bronchogenous suppurative infections because of the intramural bronchial edema. Interstitial emphysema is not usually seen except as it follows bronchial perforation in the formation of pneumatoceles. The segmental emphysema accompanies the inflammatory bronchial occlusions and is seen along with roentgenographic evidence of atelectasis and exudative reaction.

Diffuse obstructive emphysematous manifestations are most striking during the early stages of an acute diffuse suppuration (fig. 6). This is the fulminating variety and is rapidly fatal unless the patient responds well to antibiotics. The pathological process is widespread, with involvement of many scattered bronchopulmonary segments. There is overwhelming toxicity, and a necrotizing tracheobronchitis causes a diffuse emphysema of such magnitude as to obscure the infiltration in the lungs. Suppuration is present, but the toxemia terminates the illness

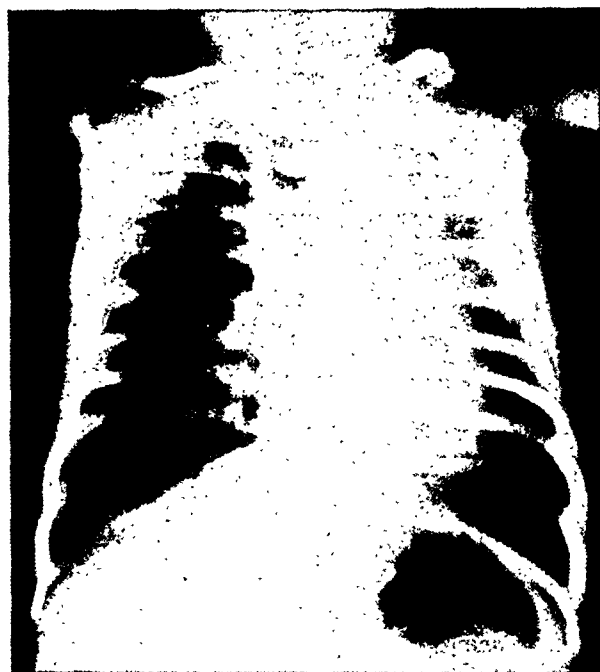


Fig. 6.—Diffuse obstructive emphysema in suppurative pneumonia. There is marked obstructive emphysema with a greater degree of involvement in the right lung. The underlying bronchopneumonia changes are obscured by the severe emphysema. Micrococcus pyogenes var. aureus was cultured from the lungs at autopsy.

before pleural invasion occurs. The paradoxical observations of clear lung fields (often interpreted as normal) in a dyspneic infant with clinical signs of severe bronchopneumonia spell an ominous prognosis to the pediatrician.

12. Forbes, G. B.: Diagnosis and Management of Severe Infections in Infants and Children: Review of Experiences Since Introduction of Sulfonamide Therapy, *J. Pediat.* 29: 45 (July) 1946.

STATISTICAL ANALYSIS

An attempt was made to correlate the roentgenographic features with laboratory proof of etiology. In 85 cases reviewed for this purpose, 20 were excluded because no roentgen examination was available and 25 were not included because the laboratory confirmation was incomplete. Forty patients in whom pyogenic organisms were cultured from autopsy material, empyema fluid, and multiple blood samples had roentgen examinations. Twenty-nine of these showed roentgen changes characteristic of suppurative pneumonia. In these 29 there were 11 instances of rapidly changing roentgen picture, 15 of pneumatocele, 7 of nontraumatic pneumothorax, 16 of pleuritis or empyema, and 10 of emphysema. These specific findings occurred in addition to infiltrative changes. Of 14 cases proved by autopsy, 9 were diagnosed according to these roentgenographic changes as suppurative pneumonia.

We have found nose and throat cultures for micrococci positive in over 85% of all pediatric admissions. This criterion of diagnosis for micrococcic pneumonia is therefore unreliable. It would seem that micrococci most frequently become pathogenic when the infant's resistance is lowered by other disease or constitutional factors.

SUMMARY AND CONCLUSIONS

An unequivocal diagnosis of suppurative bronchopneumonia is probably never justified on roentgen examination alone. Nevertheless, in most instances the roentgen studies show a sufficiently high order of specificity to

provide an early recognition of this type of disease. Roentgenograms taken at judiciously spaced intervals serve as an invaluable guide for therapy by disclosing the type and extent of the pleuropulmonary complications.

There is no useful correlation between the nose and throat cultures and the etiology of the lung disease. Positive identification of the infecting organism can be achieved only by culture from the lung or pleural cavity. For this reason, roentgen examination becomes the simplest and most practical means of establishing a working diagnosis.

In an infant or younger child, certain roentgen observations closely approach pathognomonic significance. The most reliable is the occurrence of a nontraumatic tension pneumothorax. With few exceptions, pulmonary pneumatoceles are the result of interstitial suppurative invasion of the lung. A combination of diffuse emphysema, rapidly changing parenchymal signs, and diffuse or loculated empyema signify the presence of suppurative pneumonia in the great majority of instances. Although these results of roentgen studies do not specify the type of infecting organism, they are usually caused by *M. aureus* occurring at times as a complication of virus or influenzal infection. Proper utilization of roentgen examination will help to obviate the high infant mortality incident to suppurative pneumonias by supplying the pediatrician with an earlier diagnosis and more specific indications for surgical intervention.

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ARTERIOGRAPHY AND VASCULAR STUDIES IN PAGET'S DISEASE OF BONE

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and

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Arteriovenous fistulas may be present in Paget's disease of bone; the question remains whether they are the primary cause of this disease or merely secondary manifestations. We have done special studies of three patients who had osteitis deformans. In the first patient, arteriograms of the involved lower extremity were done. In the second patient, both arteriograms and special vascular studies, including determination of femoral venous pressure, studies of circulation with Evans blue (T-1824), and simultaneous measurement of the oxygen content of blood in both femoral veins, were done. Only the special vascular studies were done in the third patient.

Fellow in Surgery, Mayo Foundation (Dr. Storsteen), and from the Section of Orthopedic Surgery, Mayo Clinic (Dr. Janes).

1. Reboul, H.: *L'artériographie des membres et de l'aorte abdominale: étude critique*, Paris, Masson et Cie, 1935, 136 pp.

2. (a) Moore, S.: Observations on Osteitis Deformans, *Am. J. Roentgenol.* **10**: 507-518 (July) 1923; Osteitis Deformans; Theory of Its Etiology, *J. Bone & Joint Surg.* **33-A**: 421-430 (April) 1951. (b) Pereira Torres, R. A., and Lazzari, A.: La insuficiencia cardiaca en la osteitis deformante de Paget, *Rev. Asoc. Méd. Argent.* **64**: 90-91 (Feb. 15-28) 1950. (c) Sornberger, C. F., and Sinedal, M. J.: The Mechanism and Incidence of Cardiovascular Changes in Paget's Disease (Osteitis Deformans): A Critical Review of the Literature with Case Studies, *Circulation* **6**: 711-726 (Nov.) 1952.

The literature contains few reports of arteriograms in extremities of patients who had osteitis deformans. Reboul¹ mentioned such a case, however, in which the lower extremity was involved. He stated, "One notices the considerable development of vascularity. All the arteries have a very large caliber. The collaterals are numerous."

We could find no records in the literature of the venous pressure, circulation time, or venous oxygen saturation of the involved extremity in Paget's disease of bone. However, several authors have demonstrated in detail an increased cardiac output and increased blood flow in bones in widespread osteitis deformans. The increased demand on the heart produces a decrease in cardiac reserve, and this predisposes to cardiac enlargement and failure.²

REPORT OF CASES

CASE 1.—A 58-year-old white man, a truck driver, came to the Mayo Clinic in May, 1950, complaining of painless swelling of the left lower leg of three years' duration. No history of trauma was apparent. The mass increased in size when the leg was dependent and receded when the patient was recumbent. It had displayed little increase in size since its initial appearance. The patient had sustained a fracture of

the neck of the right femur in 1940. He was not told that this was of a pathological type; treatment consisted of application of a cast for four months.

The patient stood with the trunk bent forward at an angle of about 10 degrees. The blood pressure was 166 mm. Hg systolic and 100 mm. Hg diastolic. All motions of the right hip were moderately limited but painless. All borders of the left tibia were prominent, and the lower third of the left leg

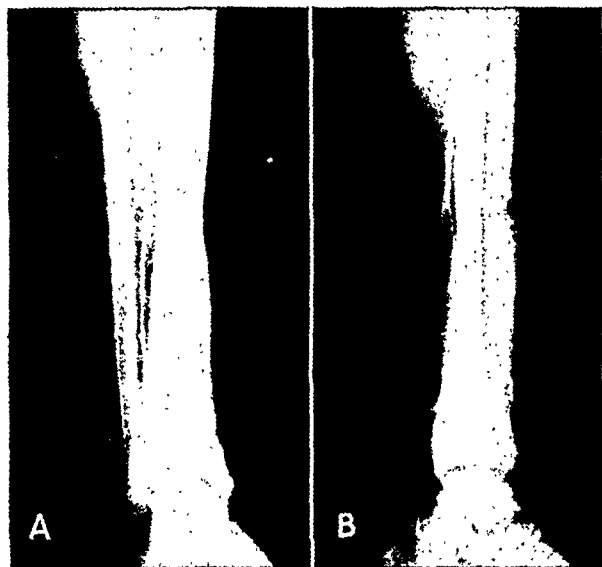


Fig. 1.—Arteriograms of left lower extremity in case 1 show extensive degree of Paget's disease and increased vascularity; A, anteroposterior view and, B, lateral view.

was swollen and had a doughy consistency. The cutaneous temperature of the lower part of the left leg was greatly increased. A pulsating mass about 2 in. (5.08 cm.) in diameter was located 2 in. above and anterior to the lateral malleolus on the left. No bruit could be heard. Pulsations of the femoral, popliteal, posterior tibial, dorsalis pedis, ulnar, and radial arteries were all normal.

Results of routine laboratory tests were normal except for a grade 2 pyuria. The value for alkaline phosphatase in the serum was 19.0 King and Armstrong units, and that for acid phosphatase was 1.1 units. Roentgenograms of the lower extremities showed the presence of typical Paget's disease in the upper part of the right femur and the lower half of the left tibia.

The arteriograms showed a considerable increase in the collateral blood supply, especially about the periphery of the osseous lesion involving the distal half of the left tibia (fig. 1). No definite arteriovenous fistulas could be seen.

CASE 2.—A 52-year-old white salesman came to the clinic in May, 1952, because of pain in the left leg of one and a half years' duration. He first had noted a deformity of the left knee two and a half years previously; a roentgenogram of this region in 1950 showed evidence of osteitis deformans. The patient had aching of the upper part of the left tibia and swelling of the left leg when he was on his feet for any extended period. Relief was obtained by rest. He had little nocturnal pain. The history revealed no report of trauma to the left leg, but the man had sustained a fracture of the right leg at the age of 10 years.

The blood pressure was 136 mm. Hg systolic and 90 mm. Hg diastolic. A varus deformity of the left knee was present and was associated with some bony enlargement. Increased warmth was noted over the upper portion of the left tibia. No joint tenderness was present.

Results of routine laboratory tests were normal. The basal metabolic rate was -3%. The value for serum calcium was 9.5 mg. per 100 cc., and that for phosphorus was 3.1 mg. The alkaline phosphatase value was 15.1 King and Armstrong units. Roentgenograms showed the findings of Paget's disease

in the upper part of the left tibia with flaring of the upper portion of the tibia, probably caused by softening of the bone.

Arteriograms disclosed increased vascularity anterior to the upper portion of the left tibia (fig. 2). No definite arteriovenous fistulas could be seen.

CASE 3.—A 49-year-old white woman, a medical secretary, came to the clinic in February, 1953, stating that a year ago she had bruised the upper half of the right tibia. This region had remained slightly tender, and she complained of a sense of deep, diffuse discomfort in it. A sister had had Paget's disease of bone.

The patient's blood pressure was 112 mm. Hg systolic and 74 mm. Hg diastolic. Slight anterior prominence over the upper end of the right tibia was present; this region was tender and warm and showed a cluster of superficial veins. All peripheral arterial pulsations were normal.

Results of routine laboratory tests were normal. The value for serum phosphorus was 3.9 mg. per 100 cc.; the alkaline phosphatase value was 5.9 Bodansky units. Roentgenograms of the right leg showed evidence of Paget's disease involving the upper half of the right tibia with great thickening of the cortex. No arteriogram was done.

STUDIES OF CIRCULATION

The table shows the results of studies of circulation performed in cases 2 and 3. In case 2, a slight increase was noted in venous pressure, together with a substantial increase in the venous oxygen saturation of the extremity

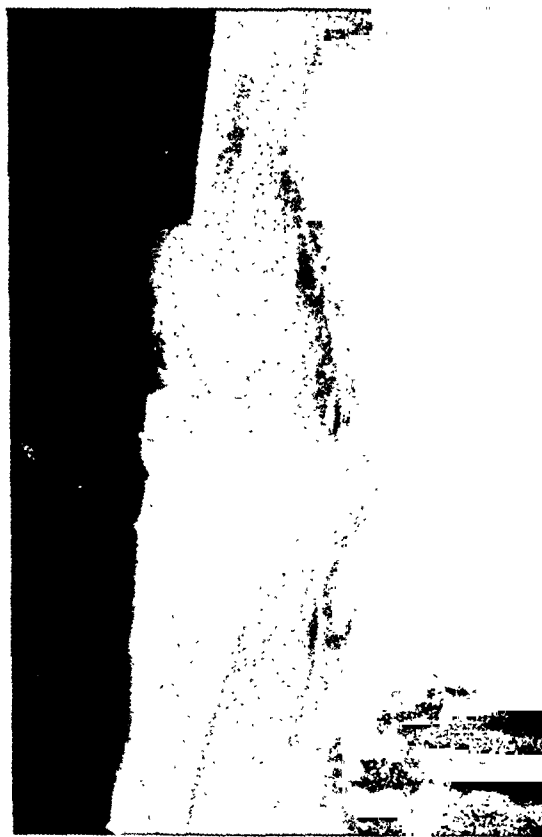


Fig. 2.—Arteriogram of left lower extremity in case 2 shows Paget's disease of the upper part of the tibia and increased vascularity about the knee.

affected by osteitis deformans. The curve of Evans blue did not indicate a difference in circulation times between the two extremities, but this does not rule out the possibility of arteriovenous communications, especially multiple small ones. Differences in circulation times usually

are noted when large arteriovenous fistulas are present.³ The data in case 3 show perhaps a slight increase in venous oxygen saturation of the extremity affected by Paget's disease. It is possible that the early and minimal involvement of bone in this case was insufficient to cause the circulatory abnormalities observed in case 2.

COMMENT

One may consider an arteriovenous shunt as the cause of the increased vascularity shown by both arteriograms and by the significantly increased venous oxygen saturation and increased venous pressure of the affected extremity in case 2. Edholm and co-workers⁴ noted that, in addition to the abnormally high cutaneous temperature of the affected parts in Paget's disease, dilatation of the heart and signs of cardiac failure combined with a high pulse pressure were often present. They recorded a cardiac output of 13.3 liters per minute in such a patient; this is extremely high. (Normal output is about 4 liters per minute.) When the signs just enumerated are combined with an increased cardiac output, one must consider anemia or arteriovenous aneurysm as the most likely diagnosis.

Results of Circulatory Studies of Femoral Veins in Patients with Paget's Disease of Bone

Case	Lower Extremity	Venous Pressure, Cm. of NaCl Solution *	Curve of Evans Blue (T-1824)	Simultaneous Venous Oxygen Saturation, %
2	Right	6.8	Normal	62
	Left	8.0	Normal	91
3	Right	4.6	Normal	75
	Left	4.8	Normal	68

* Expressed as height of column of fluid extending above midvertical plane of thorax when patient is supine.

The patient observed by Edholm's group was not anemic and did not have a traumatic or congenital arteriovenous aneurysm. These investigators thought that arteriovenous communications in the bones affected by Paget's disease might well be the cause of the arteriovenous shunt. Therefore, they applied cuffs to the thigh at a pressure greater than systolic, inserted a catheter into the right auricle, and noted (1) decrease in right auricular pressure, (2) slowing of the pulse, (3) decrease in cardiac output, and (4) slight increase in diastolic pressure. Their observations appear to indicate that multiple arteriovenous shunts are present in bones affected by Paget's disease, because the same responses as those just mentioned occur after partial occlusion of the afferent vessels of an arteriovenous aneurysm.

Edholm and associates also measured the blood flow through the diseased bone by means of a modified Lewis-Grant plethysmograph and found it to be 20 times greater than the flow through normal bone; the normal rate was about 1 cc. per minute per 100 cc. of bone. Their data

indicated that an increase of blood flow in bone occurs in widespread Paget's disease that is of sufficient magnitude to produce effects on the general circulation similar to those resulting from free arteriovenous communications. They noted the absence of significant increases in cardiac output in two cases of localized Paget's disease. This suggests that it is only when the disease becomes widespread that the circulation as a whole is greatly increased; in such cases, signs of cardiac failure may develop.

Pereira Torres and Lazzari^{2b} also have reported a case of generalized Paget's disease of bone in which cardiac enlargement and failure were present. They considered the latter difficulties to be caused by an increased blood flow. They postulated that the increased blood flow was the result of numerous arteriovenous fistulas in the affected bone.

SUMMARY AND CONCLUSIONS

Studies were made in three cases of osteitis deformans to determine if arteriovenous fistulas were present in the diseased extremity. Arteriograms showed increased vascularity in the region of osteitis deformans but failed to reveal definite arteriovenous fistulas. Results of special studies in one case demonstrated increased femoral venous pressure and increased femoral venous oxygen saturation in the involved lower extremity. Similar studies in another case showed no increase in the femoral venous pressure and only slight increase in femoral venous oxygen saturation in the extremity affected by osteitis deformans.

These data appear to indicate that multiple small arteriovenous fistulas probably are present in Paget's disease of bone. The symptoms and signs of osteitis deformans, the results of special vascular studies, and the pattern of the arteriograms probably are dependent largely on the degree of bony involvement produced by this disease.

Fatal Transfusion Reactions.—While the benefits of transfusion far outweigh the risk, there is a significant hazard in the administration of stored blood. The mortality from blood transfusion has been estimated to be as great as or greater than that from an appendectomy. The three outstanding dangers are homologous serum hepatitis, reactions due to incompatible blood, and bacterial contamination. . . . The occasional contamination of stored blood is inevitable, since it is impossible completely to sterilize the skin through which the phlebotomy needle is inserted, and since there is no effective method of sterilizing blood once drawn without damage to the blood. While earlier reports indicated more frequent contamination, an incidence of 1 to 3 per cent may be expected in modern blood banks. These studies are based on cultures of blood incubated at 37 or 32° C. Many organisms detected at these temperatures are either arrested or killed at the temperature of storage of blood (4 to 7° C.), and therefore rarely produce serious reactions. On the other hand, certain gram-negative bacilli do not grow at temperatures of 32° C. or above, but multiply freely at the storage temperature of blood. It is this group of organisms that have produced the most serious transfusion reactions.—A. R. Stevens Jr., M.D., and others, *Fatal Transfusion Reactions from Contamination of Stored Blood by Cold Growing Bacteria*, *Annals of Internal Medicine*, December, 1953.

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4. Edholm, O. G.; Howarth, S., and McMichael, J.: Heart Failure and Bone Blood Flow in Osteitis Deformans, *Chir. Sc.* **5**: 249-260 (Dec.) 1945.

ISONIAZID THERAPY IN CUTANEOUS TUBERCULOSIS AND SARCOIDOSIS

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and

John Eric Dalton, M.D., Indianapolis

The rather unsatisfactory results of previous therapies in cutaneous tuberculosis led us to investigate the newer agents introduced for the treatment of this disease in other organs. Because tuberculoderms are uncommon, it is difficult to assemble individually any large series of such cases for an evaluation of their curative plans. Thus, for our guidance, we turned to the larger therapeutic studies done on the more prevalent pulmonary forms of this malady, and we selected isoniazid for trial. Since sarcoidosis presents clinical and histopathological findings similar to tuberculosis and since it is also difficult to handle, we included two cases of this somewhat rare entity in this study.

NEWER ANTITUBERCULOUS AGENTS

The recent Veterans Administration, Army, and Navy Conference on Chemotherapy in Tuberculosis¹ contributed much to our better understanding of the newer antituberculous agents. This group seems agreed that amithiozone (Tibione)^{2a} is too toxic to warrant further employment. This is likewise true of iproniazid^{2b,c} and viomycin,^{2d} although some workers feel that the former drug may have a limited use in producing a more rapid therapeutic response in the desperately ill patient with far advanced pulmonary tuberculosis^{2b} and that the latter agent, although possessing less antituberculous activity than streptomycin, may have some value in the treatment of the streptomycin-resistant phthisic patient.^{2d}

A final evaluation of both pyrazinamide (Aldinamide), and candicidin is awaited. Although some observers contend that pyrazinamide may serve in preparing tuberculous patients for surgery,^{2e} others believe that its early inducement of resistance^{2b} may prevent a continuance of its use. Furthermore, the producers of candicidin are seeking a greater purification of their crude preparation, which may reduce its untoward reactions and permit its use as a highly effective agent against *Candida* and the other yeast-like organisms affecting the lungs.^{2f}

Chlortetracycline (Aureomycin),^{2g} oxytetracycline (Terramycin),^{2h} and erythromycin²ⁱ seemingly do not produce severe toxic effects, but they also apparently have no destructive action on the *Mycobacterium tuberculosis*. Thus, the majority of the chest physicians have discarded them as antituberculous agents. Nevertheless, one investigator^{2h} states that phthisic patients given

streptomycin and oxytetracycline respond as well as those receiving streptomycin plus *p*-aminosalicylic acid and that the employment of the ordinary dose of 1 gm. of oxytetracycline daily is borne better than the usual 12 gm. of *p*-aminosalicylic acid daily. Therefore, he concludes that oxytetracycline can be substituted, without the loss of therapeutic effect, for persons who do not tolerate *p*-aminosalicylic acid.

Several new observations on *p*-aminosalicylic acid were recorded at the recent conference in Atlanta. A group of workers^{2j} noted that the enteric-coated preparations of this drug were often passed in the stool and that this could account for certain treatment failures. Also it was reported that a solution of the sodium salt of *p*-aminosalicylic acid is therapeutically more effective than the granules or capsules of this medicament. Furthermore, a slight but definite increase in prothrombin time, without any change in coagulation time, was described in a small series of patients treated with *p*-aminosalicylic acid,^{2j} but in another large group of patients who received this drug just prior to surgery, no abnormal bleeding tendency was observed. It was suggested, however, that the prothrombin time should be determined before any surgical procedure on any person receiving *p*-aminosalicylic acid and that vitamin K₁ should be given if the test is abnormal.^{2j} In addition, it was demonstrated that *p*-aminosalicylic acid has some antithyroid activity, which was indicated by an early diminution in the iodine uptake by the thyroid gland and that may progress during the first month of treatment, but which thereafter remains stationary.^{2k}

A review of the recent studies on streptomycin yielded some new data. In an attempt to improve this agent, a *p*-aminosalicylic acid salt of streptomycin was developed, but it had no more merit.^{2l} In addition, there was a report on some brief experiences with the action of various streptomycyclamine derivatives of streptomycin.^{2l} They found one compound (N'-n-octadecylamine of streptomycin) that had a fair degree of antitubercular activity but the other members of this group were either inferior to it, were neutral in action, or actually supported a growth of *Myco. tuberculosis*. In a large study to evaluate the comparative merits of streptomycin and dihydrostreptomycin, it was recorded that there is no difference in the therapeutic results obtained with either of these two preparations.^{2m} However, because streptomycin tends to damage the vestibular apparatus and because dihydrostreptomycin tends to harm the auditory function, it seems advisable to alternate them in the injection series or to routinely use a preparation (Distrycin) containing equal parts of the two agents.^{2n,o} Furthermore, this procedure may reduce other allergic phenomena that occur with greater frequency and severity with streptomycin. Also, a report on the tissue concentra-

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Read before the Section on Dermatology and Syphilology at the 102nd Annual Meeting of the American Medical Association, New York, June 2, 1953.

Much of the information on the newer antituberculous agents was obtained from the notes of Drs. J. W. Smith and J. G. Evans of the Lilly Research Division of Indianapolis General Hospital on the Veterans Administration, Army, and Navy Conference on Chemotherapy in Tuberculosis held at Atlanta, Ga., on Feb. 9 to 12, 1953.

tion of streptomycin¹⁰ showed that there was as much as 0.5 mcg. per milliliter of tissue of the agent present in the lungs three days after the last injection in patients receiving 1 gm. of the drug daily.

In the continuing cooperative study of the Veterans Administration, Army, and Navy, which is aimed at finding the most effective treatment regimen for pulmonary tuberculosis, it has been agreed that a combination of biweekly intramuscular injections of 1 gm. of streptomycin or dihydrostreptomycin and daily oral administrations of 12 gm. of *p*-aminosalicylic acid, divided into four spaced 3 gm. doses is as effective as any of the regimens.¹² In one investigation¹¹ the accepted streptomycin schedule was simplified by use of 2 gm. doses of that agent once weekly, but this led to immediate bothersome side-effects of flushing and perioral paresthesias. In a limited study, another group¹² experimented with a single daily dose of 6 gm. of *p*-aminosalicylic acid to replace the giving of the four 3 gm. amounts of this drug, and they report a better toleration and equally good results from this modification.

HISTORY OF ISONIAZID AS ANTITUBERCULOUS DRUG

In 1912, two German chemists² were prompted to follow up the experiments of some earlier workers³ and this resulted in the first production of isonicotinic acid hydrazide, which is now called isonicotinyl-hydrazine or isoniazid, the generic name adopted by the A. M. A. Council on Pharmacy and Chemistry. At that time it was merely an interesting, new, colorless, crystalline, small-molecular, water-soluble, pure, synthetic compound bearing a formula of $C_6H_7N_3O$ and having no known use.

Then in 1945 two Frenchmen⁴ (E. Huant and V. Chorine) published separately reports on the antituberculous activity of nicotinamide. One of them (Chorine) concluded that this activity was not a vitamin result because he could not show the basic nicotinic acid to have tuberculostatic properties. Although the work of these men was forgotten, the action of nicotinamide against the tubercle bacillus was rediscovered by two Americans⁴ (McKenzie and Kushner) in 1948, but they believed this was a vitamin effect because they found that only nicotinamide derivatives that jointly possessed vitamin and tuberculostatic activity showed this antituberculous quality. These particular studies were discontinued because none of the nicotinamide derivatives that they developed were as good or more effective than nicotinamide. Nevertheless, it did stimulate research with the pyridine carboxylic derivatives,⁵ and this led to the eventual introduction of isoniazid as a drug that is cheap, orally administered, relatively atoxic, and tuberculostatic.⁶ It is available under such trade names as Nydrazid, Rimifon, Dinacrin, and I. N. H.

IN VITRO STUDIES WITH ISONIAZID

In vitro experiments⁷ with isoniazid have shown that, even in low concentrations, it has a specific and destructive effect on both extracellular and intracellular Myco. tuberculosis organisms, but it is ineffective against common gram-negative and gram-positive bacteria and only moderately active on small fungi.⁸

IN VIVO STUDIES WITH ISONIAZID IN ANIMALS

In vivo studies have demonstrated that isoniazid is effective in arresting or curing tuberculous processes in guinea pigs,⁹ mice,¹⁰ monkeys,¹¹ and rabbits¹²; that it is well tolerated by animals when given in proper amounts¹³; and that it is less toxic than other isomers of nicotinic acid.¹⁴ However, large doses of the drug could produce toxic phenomena of anorexia, jaundice, weight loss, nervous excitement, tremors, ataxia, convulsion prostration, and death in acute respiratory failure.¹⁵ In dogs, most of these reactions were reversible, and there was a definite relationship between plasma peaks and toxicity. High doses also led to changes in the red and white blood cell counts and the hemoglobin levels, but prolonged lower dosages of the drug caused no alterations in those blood elements.¹³

ISONIAZID THERAPY IN TUBERCULOSIS IN MAN

After extensive test tube and animal studies had proved that isoniazid possessed high antituberculous qualities and could safely be given to man, physicians began to use this drug in therapeutic studies on tuberculous patients. Since its advent, numerous reports have appeared on its administration in a wide variety of the forms of this disease with varying degrees of involvement.

Isoniazid in Pulmonary Tuberculosis.—The earliest clinical investigators¹⁶ of isoniazid gave this drug alone to several patients with advanced and therapeutically unresponsive disease, and they observed x-ray, clinical, and laboratory improvements, consisting of lessened cough, lowered temperature, improved roentgenological findings, decreased Gaffky counts, some negative sputums, and increased weight. Also they observed no gastrointestinal irritation, allergic phenomena, or altered kidney, liver, or heart function. Furthermore, their subsequent reports¹⁷ have continued to be favorable. Later,¹⁸ another group found that this drug alone or with streptomycin produced better roentgenological clearing than did a combined streptomycin and *p*-aminosalicylic acid form of therapy, but they failed to note much difference between these three plans in the clinical or laboratory betterment of the patients. Likewise, other workers¹⁹ in this field have recorded generally beneficial results.

However, certain skeptical voices have arisen, and a recent preliminary report²⁰ states that a three to five month schedule of therapy with streptomycin and *p*-aminosalicylic acid produces a better therapeutic result than a program of isoniazid alone or with streptomycin. Another group²⁰ found that in 33% of a series of 114 cases negative sputums developed following isoniazid treatment but over-all clinical improvement was apparent in only 10 to 11%. In some instances, the symptoms became severer during this treatment. Other workers²¹ disagree with the earlier reports of betterment in the roentgenological, clinical, and laboratory findings and even believe^{21a} that there is a higher relapse rate among isoniazid-treated patients. Some investigators feel that the drug's action is on the systemic toxicity rather than on the particular tuberculous lesion²² and that any recorded increase in appetite is a nonspecific drug effect.²⁰ In all of these evaluations it has been cautioned

that the continued values of bed rest, other supportive treatment, and the patient's own capacity to combat the infection not be forgotten.¹⁸

Isoniazid Therapy in Extrapulmonary Tuberculosis.—Furthermore, treatment with isoniazid has been beneficial in laryngeal,²³ otic,²³ gastrointestinal,²³ genitourinary,²⁴ tongue,²⁵ uveal,²⁶ meningeal,²⁷ and miliary forms^{27b} of this disease. A recent group discussion^{18,28,29} on the treatment of meningeal and miliary tuberculosis concluded that *p*-aminosalicylic acid and streptomycin is still the best combination for these manifestations, but it



Fig. 1.—Tuberculosis cutis luposa in a 34-year-old Negro housewife. A, on March 8, 1952, at institution of therapy. B, on May 7, 1953, after treatment with streptomycin, *p*-aminosalicylic acid, and isoniazid.

was admitted that isoniazid had been tried in too few cases to definitely exclude it from the therapy of those forms.

Isoniazid Therapy in Cutaneous Tuberculosis.—The first report²⁸ on the use of isoniazid therapy in cutaneous tuberculosis came from Bonn, Germany, where in several cases previously unresponsive patients with tuberculosis cutis of the luposa, verrucosa, colliquative, and papulonecrotica types attained good healing and no untoward reactions with oral administration of doses of from 5 to 10 mg. per kilogram of body weight per day of this drug. This publication was followed shortly by a report²⁹ in this country in which clinical healing was secured in one case of tuberculosis cutis luposa by giving dosages of 4 mg. per kilogram daily of the agent. Since that time one other similar article³⁰ has been published, and an earlier accepted preliminary observation by one of us (R. H.)³¹ on the joint clinical and histopathological benefits obtained from this drug in a case of lupus vulgaris has appeared.

DOSE SIZE, TREATMENT SCHEDULES, AND DURATION FOR ISONIAZID THERAPY

To determine the proper isoniazid dosage for man, several laboratory animals (dogs, mice, and rats) were subjected to acute and chronic toxicity studies by several investigators.³² From these experiments it was determined that the tolerated daily oral dose of isoniazid is related to the relative body surface areas of the different species. Thus, extension of their calculations to man indicated that amounts of 4 to 5 mg. per kilogram daily are safe for human beings. However, clinicians^{17b} began by administering 2 mg. per kilogram daily, but this dosage was gradually increased to the presently recommended quantities of 3 to 5 mg. per kilogram daily.³³ The safety and efficacy of this schedule was predicted on

the knowledge that the drug is absorbed readily from the alimentary tract,³⁴ penetrates quickly and widely into the tissues,^{35a} is excreted rapidly by the kidney and bowel,^{35b} and fails to accumulate unduly in the body.³⁴

Lately, a cooperative study group¹ has recommended the use of 6 or more mg. per kilogram daily for better therapeutic results, and the literature shows that some clinicians²⁸ had already done this in small series of cases without untoward reactions. However, some investigators¹⁸ insist that better responses occur with less than 5 mg. per kilogram daily.

To conduct a pure study,³⁶ early workers used isoniazid alone, but it was later reported¹⁸ that the improvement was not maintained if isoniazid was used alone for longer than three months. Thus, an accumulated experience³⁷ indicated that a superior therapeutic effect was achieved only when the drug was used with streptomycin or *p*-aminosalicylic acid or both, although patients on these combined regimens may show a greater number of toxic reactions than those receiving isoniazid alone.¹⁸ Therefore, for the present, the customary program is to use 3 to 5 mg. per kilogram daily of isoniazid orally plus 1 gm. biweekly of streptomycin or dihydrostreptomycin intramuscularly. Recently, a new preparation containing equal parts¹⁸ of streptomycin and dihydrostreptomycin was introduced, and this may reduce the vestibular damage or auditory harm that may result from use of these two agents.

Finally there has been a preliminary report³⁷ on the use of radioactive isoniazid. One observer noted an accumulation of this special preparation in the lungs, skin, and caseous material of tuberculous lesions, but no elevated peak in the serum level. Another investigator believes that this substance cannot be metabolized by sensitive organisms and thus destroys those bacteria, whereas resistant organisms use the drug as a source of food.



Fig. 2.—Tuberculosis cutis colliquativa in a 69-year-old woman. A, on Oct. 18, 1952, at time of first biopsy. B, on Jan. 23, 1953, after treatment with isoniazid and streptomycin.

It would seem that isoniazid can be given over indefinite but long periods with relative safety. However, there is no settled opinion on how long it should be given after the apparent healing of the active lesions.

REACTIONS AND CONTRAINDICATIONS TO ISONIAZID THERAPY

In an early report¹⁶ on the use of isoniazid alone in pulmonary tuberculosis, reactions of mouth dryness, nausea, vomiting, constipation, hyper-reflexia, muscular twitchings, bladder flaccidity, vertigo, drowsiness, and

insomnia were noted, but these signs disappeared with continuance of therapy with the drug. Furthermore, they¹⁶ observed mild eosinophilia and a slight decrease in hemoglobin levels, but they found these to be reversible. Another study²⁰ revealed elevated temperatures, increased sputum, worse chest lesions, and exudative reactions in some persons who were treated with this drug. Also, an increased coagulation time, without any change in the bleeding or the prothrombin time, and increased bleeding tendencies have been reported in

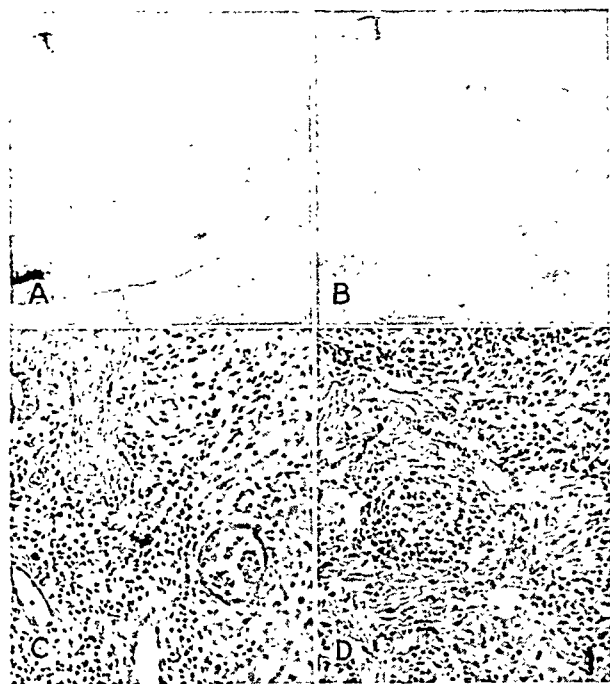


Fig. 3.—Tuberculosis cutis papulonecrotica in a 15-year-old white student. A, appearance on Dec. 6, 1952. B, lesions on May 7, 1953, after failure of treatment with isoniazid, streptomycin, and *p*-aminosalicylic acid. C, photomicrograph of biopsy specimen obtained Dec. 6, 1952. D, photomicrograph indicating failure of treatment on May 7, 1953.

some patients during isoniazid therapy.³⁸ Additional reactions of acute pellagra,³⁹ confusional psychoses,⁴⁰ aggravation of epileptic seizures,⁴¹ and the possibility of toxic hepatitis⁴² with jaundice have been recorded.

The only published dermatological manifestation⁴³ from this drug is a case of cutaneous sensitization developing in a pharmaceutical chemist who handled this drug. With this report it will behoove us to watch physicians, nurses, druggists, and others who have repeated contact with isoniazid.

No absolute contraindication to the existing isoniazid therapy has been observed, but severer reactions may be encountered with the newly recommended, increased doses of this drug. If any question arises, it would be well to decrease the dosage or discontinue administration of the drug in accordance with the severity or continuance of the sign. One group⁴⁴ believes that persons with marked central nervous system stimulation from the drug or epilepsy may be treated by concurrent oral administration of phenobarbital or pentobarbital if the toxic symptoms are acute. They⁴⁴ also caution against the use of central nervous system stimulants such as belladonna, ephedrine, or epinephrine in these particular cases. Also

any poor appetite, such as existed in the reported case of pellagra, should be bolstered by vitamin B complex.³⁹ Another worker,¹⁵ in the field of genitourinary tuberculosis, noted that higher blood levels of isoniazid may occur in patients with elevated blood urea levels, but that this is not a contraindication to the continuance of full doses of this drug.

ISONIAZID THERAPY AND DRUG RESISTANCE TO TUBERCLE BACILLI

When streptomycin-resistant organisms develop, then a combined regimen of isoniazid and *p*-aminosalicylic acid is reportedly superior to isoniazid alone^{1a} and the former drug is seemingly less effective than the latter agent in preventing the emergence of resistance to streptomycin.¹⁵

A resistance to isoniazid may appear rapidly⁴⁵ if this is used alone. This was seen in a recent study⁴⁶ of a series of cases of isoniazid-treated pulmonary tuberculosis in which bacillary resistance occurred in 11% by the end of the first month, in 52% by the end of the second month, and in 71% by the end of the third month. Furthermore, this arrested improvement⁴⁶ was shown in the repeated clinical and x-ray examinations.

These bad results can often be avoided by using isoniazid and streptomycin concurrently.⁴⁷ Also one

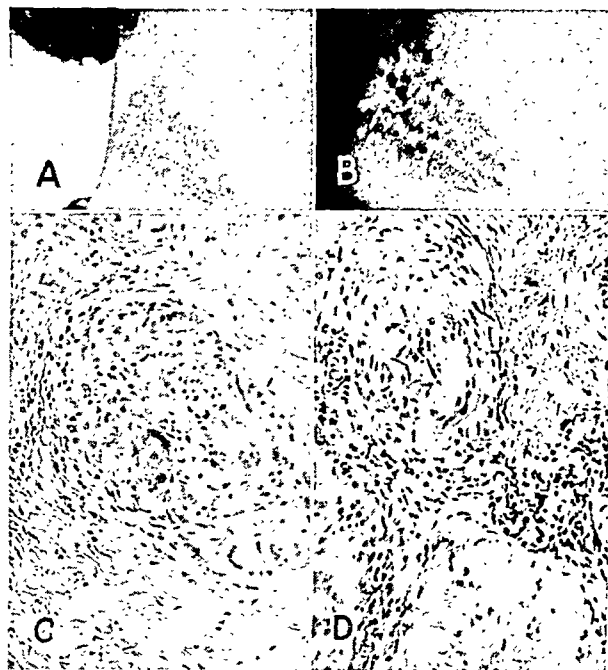


Fig. 4.—Sarcoidosis in a 37-year-old Negro woman. A, clinical appearance on Jan. 22, 1953. B, clinical appearance after treatment with isoniazid. C, photomicrograph of specimen obtained Dec. 23, 1952, on which diagnosis was based. D, photomicrograph showing lack of change in lesion with treatment.

group recently recommended an alternating schedule of isoniazid alone for one month, then streptomycin plus *p*-aminosalicylic acid for one month, then isoniazid alone for one month, and then streptomycin plus isoniazid for four months. With this regimen they did not find resistant organisms in any case.¹⁸

When isoniazid-resistant organisms emerge, the improvement in the patient's clinical condition usually re-

mains stationary or further improves and less frequently relapses.¹² As an example of this, a recent study reported on 15 patients with avirulent, isoniazid-resistant organisms; in 13 cases the tuberculosis remained improved and in only 2 worsened. Furthermore,¹² although the bacilli are considered resistant, there may still be improvement with continued isoniazid therapy. However, the mortality rate¹¹ is higher in this group than in those whose organisms have remained sensitive to this drug.

It also seems that, when organisms become resistant to isoniazid, then they also become avirulent to guinea pigs and possibly to human beings. However, considerable discussion can be provoked on whether avirulence means death of the bacilli or whether the nonviable organism can again later regain its power of viability and reproduction under some undescribed change in their condition or environment.¹²

ISONIAZID THERAPY IN CUTANEOUS TUBERCULOSIS AND SARCOIDOSIS

The effect of isoniazid therapy was studied in eight cases of tuberculosis cutis, including three of luposa, one of colliquativa, two of papulonecrotica, and two of micropapular types of this disease and two additional cases of sarcoidosis. Prior to beginning of treatment for each patient a thorough history was obtained and physical examination done. Laboratory studies included a red blood cell count, a total and differential white blood cell count; a hemoglobin determination, a urinalysis, tuberculin reaction studies, a diagnostic roentgenogram of the chest, a roentgen study of the long bones, if indicated, a cutaneous biopsy, and a clinical photograph. During the period of their observation, each patient had frequent clinical examinations, periodic biopsy studies, and clinical photograph retakes. Thus, to conserve space, we will record only the pertinent history, the physical changes, the positive laboratory results, and the procedural variances in our reports of the individual cases. Moreover, owing to lack of space, the number of photographs is limited.

The routine treatment for all patients consisted of the oral administration of 4 mg. per kilogram daily of isoniazid. In some patients other antituberculous agents were added to this program, and the particular details of those modified regimens are given in the individual case records.

REPORTS OF CASES

CASE 1.—In 1926, a tall, slender, 34-year-old Negro housewife noted a single small cluster of diascopy-positive, asymptomatic, dull red, small papules of the left malar eminence. This persisted and gradually spread into a large, solid triangular patch, involving widely the left cheek, temple, and outer canthus of the eye and eventuating in a central scar with peripheral activity. Topical and vitamin D₂ therapy had failed. A positive tuberculin test and a biopsy on Sept. 5, 1946, confirmed our clinical diagnosis of tuberculosis cutis luposa.

On March 8, 1952, biweekly injections of 0.5 gm. of streptomycin were begun and a clinical photograph made (fig. 1A). On March 18 four daily oral doses of 22½ grains (1.5 gm.) each of *p*-aminosalicylic acid were added and these were gradually increased to 45 grains (3 gm.). Since these drugs failed to benefit, they were stopped, another biopsy specimen was obtained and routine isoniazid therapy was begun on April 30. Another biopsy on June 24 revealed a subsiding pathological process, and by Oct. 6 the process appeared to

be clinically cured. However, the isoniazid therapy was continued regularly until Jan. 30, 1953, and then discontinued. After this stoppage of all treatment, the arrest has been maintained, as indicated by the clinical photograph (fig. 1B) of May 7. This case was reported in detail earlier.¹¹

CASE 2.—In 1891, while still residing in his native Poland, the short, stocky patient, a 67-year-old white tailor, had an asymptomatic eruption on the left side of the face. It was diagnosed as lupus vulgaris and persistently extended to cover rather solidly the face, nose, ears, scalp and neck, with an intermittently active and scarring process containing diascopy-positive apple-jelly papules. A positive tuberculin test and a cutaneous biopsy of Sept. 13, 1952, confirmed the clinical diagnosis of tuberculosis cutis luposa. Between Oct. 17 and Nov. 21, 1952, he received biweekly injections of 1 gm. of dihydrostreptomycin. On the latter date, another biopsy was done and routine isoniazid therapy was started. This had been continued to the time of writing, and, although there had been marked improvement some clinical and histopathological activity remained.

CASE 3.—In 1944, the patient, a short, well-nourished, 44-year-old white housewife, had a small cluster of a few scattered, asymptomatic, pinkish, diascopy-positive, small papules of the left malar area. Because additional lesions continued to appear, she consulted her family physician, who did a biopsy that was reported as showing chronic dermatitis. A subsequent biopsy on Jan. 12, 1951, by a colleague in dermatology confirmed an impression of lupus vulgaris, but topical applications and vitamin D₂ therapy failed. In 1940 pulmonary tuberculosis was diagnosed and she was treated for pulmonary tuberculosis, and in 1942 that process was declared arrested. The positive Mantoux test and repeat biopsy on March 17, 1953, confirmed our impression of tuberculosis cutis luposa. A chest roentgenogram showed no tuberculous activity in the lungs. On March 19 routine isoniazid therapy was begun, and on March 26 biweekly injections of 1 gm. of dihydrostreptomycin were added, but on April 20 we replaced the latter drug with biweekly injections of 1 gm. of a combination of streptomycin and dihydrostreptomycin (Distreptocin) sulfate. She has had remarkable clearing.

CASE 4.—The patient was a small, slender, 69-year-old, white widowed housewife. About Aug. 20, 1952, an asymptomatic, nut-sized, doughy, indolent, subcutaneous tumor was discovered just above the center of the right clavicle. When the overlying skin became inflamed in a short time, her physician lanced the tumor and obtained only scanty serous fluid. Thereafter, this opening ulcerated; a seropurulent discharge appeared; thin blood surface crusts formed; and pallid granulations occurred at the base. On Sept. 23 a biopsy specimen showed a tuberculous picture with pseudoepitheliomatous hyperplasia and a tuberculin test was positive. Chest roentgenograms demonstrated old fibrotic calcifications in both apexes and the hilar regions of the lungs and a spot film showed an increased density in the right third rib posteriorly at its juncture with the transverse process. Iodopyracet (Diodrast) injected into the neck sinus anteriorly trickled back and down to puddle about the rib thickening posteriorly. A guinea pig inoculation was positive for tuberculosis. Thus, a diagnosis of tuberculosis cutis colliquativa was made.

On Oct. 18 an initial biopsy was done, and on Nov. 13 a clinical photograph (fig. 2A) was made. On Oct. 23 routine isoniazid (I. N. H.) therapy was undertaken, with daily injections of 1 gm. of streptomycin and a check photograph (fig. 2B) on Jan. 23, 1953, was made. In mid-March, 1953, the streptomycin injections were reduced to a biweekly schedule because of vertigo, and she has been continued on this modified program to date. On her return home in February, 1953, she passed from our direct care, and for that reason there are no check biopsies or later clinical photographs. However, we have kept in contact with her present physician, and he reports that the sinus was firmly healed by April, 1953.

CASE 5.—In mid-February, 1952, the patient, a medium-tall, moderately heavy, 15-year-old white student noted an asymptomatic eruption of pinkish, deep papules. The eruption progressed to central pustulation and necrotization and eventuated in small depressed scars with a pigmented halo, or some-

times in keloids. There was a simultaneous appearance of lesions over the trunk, buttock, extremities, and neck and a few on the face. A tuberculin test was strongly positive, and a section of the skin obtained on Dec. 6, 1952 (fig. 3C), was consistent with our clinical diagnosis of tuberculosis cutis papulonecrotica. A clinical photograph (fig. 3A) on Dec. 6 shows a picture similar to that on her admission. A subsequent consultation with her internist failed to divulge a tuberculous focus in this patient, and a full investigation of her family failed to show tuberculosis in any member.

On June 21 routine isoniazid therapy was begun, and on Sept. 27 biweekly injections of 1 gm. of streptomycin were added to the program. These therapies have been carried regularly to date, but new lesions continue to develop. Lately, although not reacting to streptomycin, she was changed to a combined program of isoniazid and *p*-aminosalicylic acid. This treatment failure is indicated in the clinical photograph (fig. 3B) and the photomicrograph (fig. 3D) of May 7, 1953.

CASE 6.—In August, 1952, this medium-tall, obese, 49-year-old white man had a sudden single outcropping of asymptomatic papulopustular lesions scattered over both lower extremities. These persisted and led to a central pustulation and necrosis with eventual centrally pitted scars, which had surrounding pigmentation. There was a history of chorioretinitis of unknown cause in 1947. A tuberculin test positivity and a suggestive tuberculous picture in the biopsy led a colleague in dermatology to make the clinical diagnosis of tuberculosis cutis papulonecrotica. On Nov. 22 routine isoniazid therapy was begun, with biweekly injections of 1 gm. of dihydrostreptomycin. On Jan. 23, 1953, the administration of dihydrostreptomycin was stopped, but the isoniazid was given alone for an additional month, when all medication was stopped. The process cleared, and no new lesions have appeared.

CASE 7.—In early 1946 a moderately tall, slender, 32-year-old white housewife noted asymptomatic, pinkish-yellow, barely elevated, very small papules. They were scattered and grouped about the forehead, cheeks, chin and upper neck, and led to minute depressed scars. Other physicians had treated this as a contact or food allergy, and she complained of considerable nervousness for which she had earlier taken sedatives. On Feb. 2, 1948, a biopsy showed only one small area of epithelioid reaction, and the tuberculin test was only slightly positive. After consultation with a dermatologist, a diagnosis of micropapular tuberculid was made. Between Feb. 7, 1948, and Dec. 2, 1952, she received fairly continuous vitamin D₂ therapy, and the lesions improved but never cleared. On Dec. 2 routine isoniazid therapy alone was begun, and this has been continued to date. Early in the treatment the response was slow, but later the process showed definite clinical improvement; she refused a check biopsy.

CASE 8.—In early 1950, a moderately tall, moderately heavy, 35-year-old white housewife had pruritic, erythematous, small, deep papules in the lateral portions of both cheeks. Earlier she had had acne vulgaris, and she still complained of an occasional pimple. Of herself, she had used several topical proprietaries, but she admitted no drug ingestion. A chest roentgenogram showed several calcified right hilar nodes, a midright lung Ghon complex, and marked right base bronchovascular markings. A tuberculin test was moderately positive. A biopsy specimen on Jan. 1, 1951, was compatible with micropapular tuberculid, and we made a clinical diagnosis of the same entity. Between Feb. 7 and Dec. 15, 1952, she received rather continuous vitamin D₂ therapy with moderate improvement, but the discomforts of a pregnancy temporarily interrupted her treatment and observation. However, she returned with a flare-up on March 23, 1953, and routine isoniazid therapy alone was begun, which has been continued to date. She was essentially free of her eruption when last seen, but she refused a check biopsy.

CASE 9.—From Aug. 1, 1952, to the time of writing, a tall, slender, 31-year-old white housewife had had six asymptomatic lesions of the forehead and cheeks. They were split-pea-sized, pinkish-yellow-brown solid lesions that were elevated peripherally. Her tuberculin test was negative, and roentgenological studies of the chest and long bones revealed no abnormalities. A biopsy performed on Feb. 3, 1953, confirmed

our clinical diagnosis of sarcoidosis. On Feb. 24, 1953, routine isoniazid therapy alone was begun and has been continued to date. No clinical improvement had occurred by May 11.

CASE 10.—On Aug. 25, 1952, a medium-tall, slender, alert, 37-year-old Negro housewife entered our tuberculosis division. She had had a dry cough for two years, fatigue for 1½ years, a skin eruption for one year, voice huskiness and dyspnea for six months, a weight loss for three months, and recurrent hemoptysis for 10 days. After admission she failed to bleed further and the physical chest signs cleared promptly, but the huskiness, dyspnea and skin eruption persisted. Her skin eruption consisted of dull-red, firm, single or grouped papules about the nares, nose angles, and eyelids; there were patchy or linear arrangements about the right forehead, the left mandibular area, the right elbow extensor, and the posterior right side and anterior neck. A laryngoscopic examination revealed thickening of the left vocal cord and ulcerations of the epiglottis, the aryepiglottic folds, and the arytenoid cartilage. Results of tuberculin tests with increased concentrations, sputum examinations, a histoplasmin test, and blood serologic studies were all negative. Repeated chest roentgenograms were interpreted as showing tuberculosis, but on a later review these were adjudged compatible with atypical sarcoidosis. The microscopic examination of laryngeal tissue lay between tuberculosis and sarcoidosis, but a cutaneous biopsy specimen (fig. 4C) on Dec. 23 was consistent with the latter. Thus, in considering all findings, a diagnosis of sarcoidosis was made. On Jan. 22, 1953, a clinical photograph (fig. 4A) was made. On Jan. 5 routine isoniazid therapy was started alone, and this has been continued to date. Although a clinical photograph (fig. 4B) and a photomicrograph (fig. 4D) on May 11 showed the skin eruption to be unaltered, the consulting chest physician believed the lung picture looked better, although he added that this may sometimes be a transitory phase in this disease.

SUMMARY

In the true tuberculoderms, two patients (cases 1 and 3) with tuberculosis cutis luposa and one patient (case 4) with tuberculosis cutis colliquativa obtained excellent therapeutic results with isoniazid administered alone or in combination with streptomycin or dihydrostreptomycin. However, another patient (case 2) with tuberculosis cutis luposa showed only a good but incomplete response to isoniazid and dihydrostreptomycin, but we believe that his marked residual scarring would have slowed the penetration of any chemotherapeutic agent.

In the last two cases of tuberculosis cutis papulonecrotica, one patient (case 6) had prompt and complete disappearance of his lesions with isoniazid plus dihydrostreptomycin and the lesions have remained clear after discontinuance of therapy. The condition of the other patient (case 5) has worsened during treatment with isoniazid combined with streptomycin and *p*-aminosalicylic acid. However, it is possible that the former patient, a middle-aged man, was more careful of his rest and general living than the latter patient, a high school girl. In the two cases of micropapular tuberculid (cases 7 and 8), both patients showed a slow response to isoniazid therapy alone but when last seen they were showing definite signs of improvement and the skin of one of them is essentially clear (case 8). In the two cases of sarcoidosis (cases 9 and 10), there was no cutaneous improvement after administration of isoniazid alone. However, the pulmonary clearing reported by the consultant in case 10 is yet to be fully evaluated.

We feel that all reported progress should be checked by both clinical and histopathological studies. Our much too limited study seemed to indicate that one can expect a faster and better therapeutic result with isoniazid in

the true tuberculoderms than in the tuberculids. This is not a rigid statement, however, and we ask other workers to check on this preliminary observation.

Our limited study showed no untoward reactions ascribable to isoniazid and an ordinarily prompt therapeutic response, when used in oral doses of 4 mg. per kilogram of body weight per day, but we regret the vestibular damage produced by streptomycin in case 4. Furthermore, it would seem that this drug can be employed over indefinitely long periods. One must watch

for isoniazid resistance, however, although no relapse occurred in our series after the condition of a patient had once cleared. It is now agreed that this agent is best used in combination with streptomycin or dihydrostreptomycin or a combination of streptomycin and dihydrostreptomycin (Distreptocin) sulfate and possibly *p*-aminosalicylic acid, and we do recommend the further trial of this drug in combination for cutaneous tuberculosis and sarcoidosis.

Locke and 10th St. (Dr. Dalton).

NEWER APPROACHES TO THE STUDY OF HEMOPHILIA AND HEMOPHILIOID STATES

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Recent studies have shown that hemophilia, even if severe and classical in type, may be easily confused with other hemorrhagic states. Severe hemorrhagic manifestations, including repeated hemarthroses, a family history suggesting a sex-linked recessive inheritance, and laboratory findings, such as a long clotting time, normal prothrombin time, and delayed prothrombin utilization, may all be present; yet the disease may not be true hemophilia. On the other hand, it has been shown that hemophilia may be so mild that the diagnostic procedures in common use are inadequate for diagnosis.

In the last few years many cases of hemophilia-like disease, different from either the severe or mild forms of hemophilia, have been described. As in hemophilia, there is a bleeding tendency from childhood, and often there are other bleeders in the family. The clotting defects shown by these patients are of several different types. They resemble hemophilia in that there is ineffectual conversion of prothrombin to thrombin. At least four distinct hemophilia-like hemorrhagic diseases, apparently due to a deficiency of one of four separate plasma clotting factors, have been described. These diseases form a group that we term the hemophilioid states. In this paper two new methods for the diagnosis of hemophilia are considered along with a simple procedure for the differentiation of hemophilia and the various hemophilioid states.

METHODS

The two new methods for the diagnosis of hemophilia are (1) the partial thromboplastin time (PTT) and (2) a simplified antihemophilic factor (AHF) assay procedure. The partial thromboplastin time¹ is performed at 37 C by mixing 0.1 ml. of oxalated plasma, 0.1 ml. of partial thromboplastin (either crude cephalin or Asolectin²), and 0.1 ml. of 0.02 M calcium chloride, in the order named. The concentration of partial thromboplastin is adjusted by dilution to give a clotting time in the range of 40 to 80 seconds; 0.3% suspension is usually satisfactory.

The AHF assay has been described in detail by Langdell, Wagner, and Brinkhous.¹ Results are expressed in per cent of normal. The 100% value is that of a care-

fully selected person whose AHF activity is about that of the mean of a larger group of normal adults. The prothrombin time and the two prothrombin utilization (or consumption) methods have been described previously.³ Clotting times were done by the two tube Lee-White method. Bleeding times were performed by Ivy's method.

PATIENTS WITH HEMOPHILIA AND SUBHEMOPHILIA

The use of the two new laboratory procedures, the partial thromboplastin time and the AHF assay is illustrated in three cases of hemophilia of different degrees of severity. Included in the study is a "normal" subject who had one episode of abnormal bleeding postoperatively. This subject is representative of a group we have called subhemophilia, which will be considered below.

Classical Hemophilia.—A 28-year-old taxi driver (T. W. T.) bruised easily all his life. He had "arthritis" for many years. Hemarthroses occurred in many joints, and the right knee was immobile. Severe internal hemorrhage five years prior to our study required numerous transfusions. He had two brothers, both of whom were "bleeders," five normal sisters, and one normal son. During childhood he was told he had hemophilia.

Moderate Hemophilia.—A 69-year-old retired college professor (H. A. D.) had frequent bruises and occasional large hematomas all his life. At the age of 8 he bled for several days after a sling shot injury to the forehead. As a college baseball player, at the age of 25, he injured his

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Dr. Jessica H. Lewis, Chapel Hill, N. C., arranged for our study of patients D. H. and R. S., and Drs. R. W. Coons and R. L. Rosenthal, New York, arranged for the study of patients V. M. and B. Y., respectively.

1. Langdell, R. D.; Wagner, R. H., and Brinkhous, K. M.: Effect of Antihemophilic Factor on One-Stage Clotting Tests, *J. Lab. & Clin. Med.* 41: 637 (April) 1953.

2. This product is a commercial phosphatide preparation made from crude soya lecithin by Associated Concentrates.

3. Langdell, R. D.; Graham, J. B., and Brinkhous, K. M.: Prothrombin Utilization During Clotting: Comparison of Results with 2-Stage and 1-Stage Methods, *Proc. Soc. Exper. Biol. & Med.* 74: 424 (June) 1950.

left hip during play and had recurrent swelling and pain at the age of 45. At the age of 57 he bled for 10 days from the operative wound after hemorrhoidectomy. After tooth extractions, he always bled for several days. He was told on two occasions during the past 15 years, after blood studies, that he had vascular purpura. He had no transfusions. No other members of the family were similarly affected.

Mild Hemophilia.—An 18-year-old college student (V. McF.) bruised easily all his life. After tonsillectomy at the age of 5 and after a fall at the age of 6 in which two teeth were knocked out, he bled for many days and was given blood transfusions on both occasions. At the age of 9 he was hospitalized for one week because of bleeding after a tooth extraction. He was given one transfusion. There were no hemarthroses. The patient played basketball regularly in high school and college. The family history was reported elsewhere.⁴

Subhemophilia.—A 22-year-old male college student (W. McL.) was always in good health. At the age of 16 after circumcision, he had a slow ooze from the operative wound for nearly a week.

In the patient with subhemophilia who had had a single bleeding episode, the AHF was 33% of normal. It will be observed that there is a good correlation between the plasma AHF levels and the severity of the bleeding diathesis. The partial thromboplastin time was prolonged in patients with severe and moderate hemophilia but was normal in patients with mild hemophilia and the subhemophilia. These results were to be expected, since Langdell and associates¹ have shown that the partial thromboplastin time is normal when the plasma AHF content is at least 15%. In contrast to these results, the clotting time and prothrombin utilization tests were abnormal only in the patient with classical hemophilia. These methods appear to be less sensitive than the partial thromboplastin time in detecting a clotting defect of moderate severity.

The finding of a person with an AHF level of 33% led to the determination of plasma AHF in a large number of normal adults. Results of one such study on 47 normal subjects are shown in figure 1. AHF values are given as the nearest 10% figure. Over a threefold difference from the lowest to the highest value (50 to 170%)

TABLE 1.—Comparison of Antihemophilic Factor (AHF) Levels with Other Clotting Tests in Hemophilia and Subhemophilia

Patient	Diagnosis	Plasma AHF, %	Clotting Time, Min.	Bleeding Time, Min.	Prothrombin Time, Sec.	Partial Thromboplastin Time, Sec.	Prothrombin Utilization Test			
							Residual Prothrombin, %			
							After 30 Min.		After 60 Min.	
							One Stage	Two Stage	One Stage	Two Stage
T. W. T.....	Classical hemophilia	0	>60	5	12	210	150	100	140	96
H. A. D.....	Moderate hemophilia	<3	12	5	12	180	85	21	15	<5
V. McF.....	Mild hemophilia	16	9	5½	12	70	95	45	21	<5
W. McL.....	Subhemophilia	33	8.5	5	12	68	84	44	18	<5
J. B. C.....	Normal	100	8.5	5	12	76	88	84	19	<5

CLOTTING TESTS IN HEMOPHILIA

Clotting tests on the patients with hemophilia or subhemophilia are given in table 1. These patients were selected to illustrate (1) the variation in plasma AHF levels in different patients with hemophilia, and (2) the relationship between AHF levels and other laboratory tests.

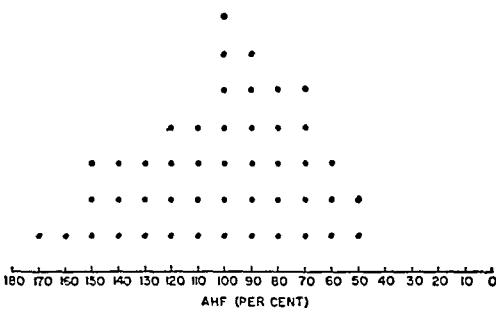


Fig. 1.—Plasma antihemophilic factor (AHF) levels of 47 healthy normal adults of either sex.

The AHF assay revealed none of this clotting factor in the patient with classical hemophilia; a trace of AHF was found in the patient with moderate hemophilia; and 16% of AHF was found in the patient with mild hemo-

was observed. Periodic determination of AHF levels in the same persons showed that the antihemophilic activity of plasma remains remarkably constant and appears to be characteristic of the individual person. In the survey of normal persons, no other subjects with AHF below 50% were found; however, in a family previously reported,⁴ there were seven persons, one male and six females, with AHF levels in the range of 30 to 45%. It was found that 63% of the persons in the 30-45% range had bled excessively after operative procedures. The operative procedures included cesarean section, hysterectomy, tonsillectomy, oviduct ligation, and uterine curettage. All except two patients had occasional epistaxis and bruised easily. The bleeding from wounds was a slow ooze, and the rebleeding phenomenon occurred. From the data at hand, it appears that with stress to the hemostatic mechanism still lower AHF levels may develop in persons with low AHF levels and they become temporary bleeders. For this reason we have designated this group as subhemophilia.

HEMOPHILIOID STATES

Several hemophilia-like hemorrhagic diatheses have been recognized in the past six years. A variety of terms has been used to designate this group of congenital bleeders. Among the terms used are parahemophilia, Owren's disease, Ac-globulin deficiency, labile factor deficiency, factor 5 deficiency, congenital deficiency of

4. Graham, J. B.; McLendon, W. W., and Brinkhous, K. M.: Mild Hemophilia: An Allelic Form of the Disease, *Am. J. M. Sc.* 225: 46 (Jan.) 1953.

proaccelerin, serum prothrombin conversion accelerator (spca) deficiency, congenital hypoproconvertinemia, Christmas disease, plasma thromboplastin component (PTC) deficiency, plasma thromboplastin antecedent (PTA) deficiency, or merely a special form of hemorrhagic diathesis. There appear to be at least three, and probably four, separate clotting factors concerned in these congenital deficiencies. Much disagreement exists among workers in the field of blood clotting regarding the mechanism by which these various new clotting factors contribute to physiological thrombin formation. The varied nomenclature is in part a result of different theories that have been propounded in recent times regarding the sequence of events in the early phases of blood clotting. Until critical data are available to determine the exact biochemical reactions in which each of these factors participate, the use of a nonspecific terminology for this group of deficiency states is proposed. This terminology, along with the deficient plasma factor, is indicated in table 2. Hemophilia, because of its clinical and pathological similarity to these diseases, is included. Revisions of the list can be made as new facts are established. A brief summary of the more pertinent characteristics of these newly recognized hemorrhagic diseases is given below. A clinical abstract illustrates each type of disease.

Hemophilioid State A (Parahemophilia).—Parahemophilia was first clearly described by Owren in 1947.⁵ Since then at least 16 well-documented cases have been reported. Epistaxis and dermal ecchymoses, without hemarthroses, are the most frequent hemorrhagic manifestations. Either sex may be involved. Laboratory data indicate that bleeding time, clot retraction and platelet counts are within the limits of normal. The clotting time may be prolonged to 30 or 60 minutes (normal 9 to 12 minutes). The prothrombin time is long, but plasma prothrombin levels determined by the modified two stage procedure are normal. Prothrombin consumption tests show slow utilization of prothrombin in clotting blood. The factor in normal plasma that corrects the deficiency is a globulin, since it is precipitated between 25 and 50% saturation with ammonium sulfate. It is not adsorbed onto barium sulfate and disappears rapidly on aging of plasma. The disease may occur sporadically but usually there is a positive family history, with occurrence of a similar bleeding tendency in siblings, one parent, aunts, uncles, cousins, or more distantly related relatives.

The patient (D. H.), a 3-year-old girl, appeared well until 6 months old, when a hematoma developed at the site of a needle puncture wound. Later, after a fall in which she bit her tongue, bleeding and a severe hematoma developed. Blood transfusions were followed by prompt hemostasis. There were no known bleeders in the family. Prothrombin (two stage method) was 105%, and the AHF value was 78%.

Hemophilioid State B.—The hemorrhagic diathesis, hemophilioid state B, was described by Alexander and co-workers in 1951.⁶ Only four other cases have been reported since then, aside from the case referred to below. Epistaxis and dermal ecchymoses are the most common hemorrhagic manifestations. Hematuria, melena, and hemarthrosis have also been described. The clotting time

may be somewhat prolonged; the highest value reported is 20 minutes. In the severest case prothrombin utilization was impaired. The prothrombin time is prolonged, but prothrombin determined by a modified two-stage procedure is normal. The factor that corrects this defect is removed from normal plasma by the common adsorbents for prothrombin, including barium sulfate. The plasma factor is thought to be converted to an active form (e. g., serum prothrombin conversion accelerator) during clotting. It occurs in both sexes and in siblings. The mother may be affected.

The patient (R. S.), a 32-year-old man, had had bleeding episodes since birth. There was excessive bleeding for two days from the ligated umbilical cord. There were repeated episodes of epistaxis, hematuria, and melena. Subcutaneous hemorrhages were frequent. His joints were swollen (hemarthrosis?). Other relatives were subject to free bleeding, but were not tested. The clotting time was 20 minutes. Prothrombin (two stage

TABLE 2.—Hemophilia and Hemophilioid States, with Associated Clotting Factor Deficiency

Hemorrhagic Disease	Deficient Factor	Probable Synonyms for Deficient Factor
Hemophilia	Antihemophilic factor (AHF)	Antihemophilic globulin (AHG) Thromboplastinogen Thromboplastic plasma component (TPC)
Hemophilioid state A	Accelerator globulin (AcG)	Labile factor Factor 5 Accelerin
Hemophilioid state B	Serum accelerator factor (SAF)	Serum prothrombin conversion accelerator (spca) Convertin Factor 7 Stable factor Co-thromboplastin (Mann)
Hemophilioid state C	Plasma thromboplastin component (PTC)	Christmas factor
Hemophilioid state D	Plasma thromboplastin antecedent (PTA)	

method) was 100%, and AHF was 180%. The prothrombin utilization test (two stage) was normal.

Hemophilioid State C.—Aggeler and associates carefully studied hemophilioid state C in 1952.⁷ Fourteen additional cases have been reported in the last year. The commonest hemorrhagic manifestations are epistaxis, dermal ecchymoses, and hemarthroses. The bleeding time and clot retraction tests and platelet counts are within normal limits. The clotting time is prolonged; it may be delayed for only a few minutes or for several hours. Plasma prothrombin is normal and the prothrombin time is normal. The factor in normal plasma that corrects the defect is adsorbed along with prothrombin onto many adsorbents, including barium sulfate. The factor is precipitated by 45 to 50% saturation of normal plasma with

5. Owren, P. A.: Parahaemophilia: Haemorrhagic Diathesis Due to Absence of a Previously Unknown Clotting Factor, *Lancet* 1: 446 (April 5) 1947.

6. Alexander, B.; Goldstein, R.; Landwehr, G., and Cook, C. D.: Congenital SPCA Deficiency: Hitherto Unrecognized Coagulation Defect with Hemorrhage Rectified by Serum and Serum Fractions, *J. Clin. Invest.* 30: 596 (June) 1951.

7. Aggeler, P. M., and others: Plasma Thromboplastin Component (PTC) Deficiency: New Disease Resembling Hemophilia, *Proc. Soc. Exper. Biol. & Med.* 79: 692 (April) 1952. Lewis, J. H., and Ferguson, J. H.: Hemorrhagic Diathesis due to PTC (Plasma Thromboplastin Component) Deficiency, *Proc. Soc. Exper. Biol. & Med.* 82: 445 (March) 1953.

ammonium sulfate. The disease has been described only in males, except for the patient indicated below. Most cases have occurred in families in which the transmission appears to be sex-linked, as in hemophilia.⁷ Several sporadic cases have been described.

The patient (V. M.), a 49-year-old housewife, had had a bleeding tendency since childhood. She bruised easily throughout childhood, and epistaxes were frequent. Tonsillectomy during childhood was not followed by excessive bleeding; however, uterine bleeding was excessive after each of three deliveries. Excessive bleeding also occurred after tooth extractions. In 1953, after a thyroidectomy, there was extensive postoperative hemorrhage that was controlled by blood transfusions. Two sons were bleeders; one had repeated hemarthroses and was crippled. The clotting time was 12 minutes. The

The corrective factor in normal plasma appears to be adsorbed onto barium sulfate. The three patients described have been in one family—a man and his two nieces.

The patient (B. Y.), a 29-year-old housewife, had had a mild bleeding tendency since childhood. It was observed particularly after tooth extractions. The family history, as well as other data on this patient, was described earlier by Rosenthal.⁸ The clotting time was 15 minutes. Prothrombin (two stage) was 96% of normal, and AHF was 142%.

CLOTTING TESTS IN THE HEMOPHILIOID STATES

In general, the recognition of the various members of the hemophilioid group as separate hemorrhagic states has been dependent on extensive laboratory studies of the blood. These studies included negative findings, such as normal fibrinogen, prothrombin, clotting inhibitor, and platelet numbers, coupled with the positive finding of delayed conversion of prothrombin to thrombin. The latter was indicated by (1) a long prothrombin time, in which the plasma clotted relatively slowly in spite of normal prothrombin levels and the presence of potent thromboplastin, (2) slow disappearance of prothrombin from clotting blood in prothrombin utilization or consumption tests, or (3) slow evolution of thrombin in the two stage prothrombin assay. Further localization of the clotting defect was dependent on special studies. In the main these consisted in determining the effectiveness of normal plasma and serum fractions, and of plasmas with known deficiencies, on the clotting defect under study. Clear-cut corrective or noncorrective action helped to categorize the nature of the hemorrhagic diathesis.

An effort was made to find a pattern of simple tests by which each disease in the hemophilia-hemophilioid group could be identified. Comparative clotting studies were done on the four patients mentioned above, each with a different hemophilioid state, and on the classical hemophiliac (T. W. T.). The clotting studies consisted of prothrombin time and partial thromboplastin time determinations. The results are shown in figure 2. In section 1 of the figure it will be noted that the partial thromboplastin time is prolonged in all five of the patients in this group, whereas the prothrombin time is prolonged in only hemophilioid states A and B. In section 2 of the figure it is seen that, on mixing pairs of plasmas in all combinations, the prolonged clotting times noted in section 1 of the figure become normal. The mutually corrective action on the clotting defect of these plasmas strongly supports the idea that each of the patients had a deficiency of a separate clotting factor. In section 3 of the figure are given the results of the two clotting tests after adding to the patient's plasma, normal plasma adsorbed with barium sulfate. The adsorbed plasma contains three important clotting factors, fibrinogen, AHF, and the factor missing in hemophilioid state A, but it lacks prothrombin and the three factors missing in hemophilioid states B, C, and D. As would be expected, the partial thromboplastin time becomes normal in hemophilia and hemophilioid state A after fortification of the patient's plasma with barium-sulfate-treated normal plasma but remains unchanged in hemophilioid states

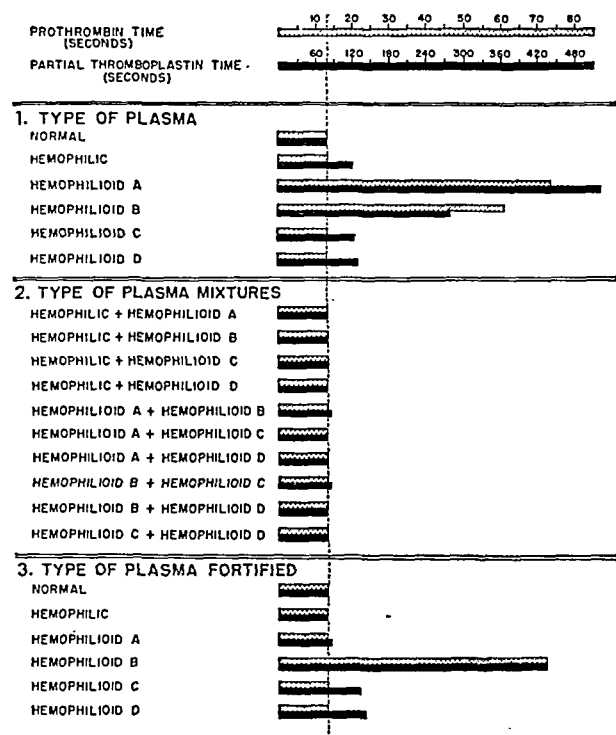


Fig. 2.—Prothrombin times and partial thromboplastin times on oxalated plasmas of patients with hemophilia or a hemophilioid disease: (1) standard clotting tests with 0.1 ml. plasma, 0.1 ml. thromboplastin, and 0.1 ml. of 0.02 M calcium chloride were used; (2) 0.1 ml. of plasma mixture consisting of equal parts, as indicated, used in the standard clotting tests; and (3) 0.1 ml. of plasma mixture consisting of equal parts of plasma indicated and barium-sulfate-treated normal plasma, used in the standard clotting tests.

prothrombin (two stage) was 100%, and AHF was 93%. Prothrombin utilization was impaired, with 56% prothrombin remaining in the serum at two hours.

Hemophilioid State D.—Only three cases of hemophilioid state D have been described, all by Rosenthal in 1953.⁸ Excessive bleeding after tooth extraction is the commonest hemorrhagic manifestation. Prothrombin levels by the two stage method, prothrombin time, bleeding time, clot retraction and platelet count are all normal. The clotting time is somewhat prolonged (15 to 29 minutes). The prothrombin consumption test is prolonged.

8. Rosenthal, R. L.; Dreskin, O. H., and Rosenthal, N.: New Hemophilia-Like Disease Caused by Deficiency of a Third Plasma Thromboplastin Factor, *Proc. Soc. Exper. Biol. & Med.* 82: 171 (Jan.) 1953.

B, C, and D. The prolonged prothrombin time after fortification becomes normal in hemophilioid state A but not in state B.

PROCEDURE FOR DIAGNOSIS

The data presented in figure 2 provide the basis of a relatively simple schema for differentiating the bleeding diatheses that belong to the hemophilia and hemophilioid group. The procedure consists basically of two tests, the partial thromboplastin time and the prothrombin time. Each test is done on the patient's plasma alone, as well as on the patient's plasma fortified with equal volumes of fresh normal barium-sulfate-treated plasma. Table 3 shows the distribution of results with this group of patients. The patients fall into four main groups: (1) hemophilia, (2) hemophilioid state A, (3) hemophilioid state B, and (4) hemophilioid states C and D. The latter two states are not differentiated in this procedure.

This procedure has the limitation that mild deficiencies may not be detected. Thus, in very mild hemophilia, all of the tests are negative. In mild cases, more complicated tests designed to quantify the degree of the clotting factor deficiency are necessary. Also, in the differentiation of the various disease states, this procedure may not be adequate; for example, a two stage prothrombin determination, made after addition of the B factor, is needed to distinguish hemophilioid state B from hypoprothrombinemia. In case the plasma fits into the fourth category, either type C or type D hemophilioid state may be present. A presumptive diagnosis may be made by doing partial thromboplastin times on the patient's plasma after mixing with known type C and type D plasmas, instead of with barium-sulfate-adsorbed plasmas.

INHERITANCE OF HEMOPHILIA AND HEMOPHILIOID STATES

The inheritance of hemophilia is the best understood of this group of hemorrhagic diseases. Classical hemophilia was one of the first diseases to be recognized in modern times as being inherited as a sex-linked recessive characteristic. With rare exceptions, the disease is seen only in males. Genetic theory attributes the disease in the male to the presence of the recessive gene h on the unpaired portion of X-chromosome. The normal male has the dominant gene H in the same chromosomal locus. It is thus assumed that with the gene H the body is able to produce normal amounts of plasma AHF, but with the gene h this ability is lost. In the female conductors, both genes H and h are present, one on each of the X-chromosomes; these heterozygotes have normal plasma AHF levels.

In hemophilia, there are five possible crosses: (1) heterozygous female ($X^H X^h$) and normal male ($X^H Y$), the usual cross in hemophilia; (2) normal female ($X^H X^H$) and hemophilic male ($X^h Y$), an increasingly frequent cross as more hemophiliacs reach maturity; (3) heterozygous female ($X^H X^h$) and hemophilic male ($X^h Y$), an extremely rare cross in human genetics, and from which a hemophilic female may issue; (4) hemophiliac female ($X^h X^h$) and normal male ($X^H Y$); and (5) hemophilic female ($X^h X^h$) and hemophilic male ($X^h Y$). Only in canine hemophilia have all of the pos-

sible crosses been tested.⁹ All of the combinations gave progeny exactly as the theory of sex-linked inheritance predicts, including the above-mentioned cross 4, which has not yet been reported in detail.

The study of families with either mild hemophilia or the subhemophiliac trait has added to the knowledge of the inheritance of this disease. In one family with the mildest form of hemophilia,⁴ the affected males rarely bled excessively, and their plasma AHF level was in the range of 12 to 22%. The constancy of the disease and the AHF levels in the affected individuals led to the postulation that they had an allelomorphic form of hemophilia, due to an allele h^m , distinct from h , which is responsible for classical hemophilia. The allele h^m , then, permits production of AHF, but not in amounts sufficient for effective hemostasis.

In the case of the subhemophiliac (W. M.), his four siblings had AHF levels in the narrow range of 57 to 69%. This is in marked contrast to the spread in AHF levels in a group of randomly selected normal adults (fig. 1). Similar results were found in other families in which various members had roughly the same AHF levels. It appears that there may be a series of isoalleles,

TABLE 3.—Schema for Differentiation of Hemophilia and Hemophilioid States

Presumptive Diagnosis	Prothrombin Time		Partial Thromboplastin Time	
	Plasma	Fortified Plasma*	Plasma	Fortified Plasma*
Hemophilia	Normal	Normal	Prolonged	Normal
Hemophilioid state A	Prolonged	Normal	Prolonged	Normal
Hemophilioid state B	Prolonged	Prolonged	Prolonged	Prolonged
Hemophilioid state C or D	Normal	Normal	Prolonged	Prolonged

* Prior to the test the patient's plasma was mixed with equal parts of fresh normal plasma treated with barium sulfate.

$H, H', H'', \dots$, each one of which is associated with a characteristic level of plasma AHF. This series of alleles may be a continuous one, and would account for the range of normal AHF levels, as well as the AHF levels characteristic of subhemophilia, mild hemophilia and the more severe forms of the disease. The series may be represented as $H, H', H'', \dots, h^m, h^m, h$.

The clear recognition of the hemophilioid states has been relatively recent, and genetic studies in most cases are fragmentary. In hemophilioid state A, the disease has been observed in both sexes and has been transmitted by both sexes, either affected or unaffected. While the transmission appears to be autosomal in type, it is not clear if it is recessive or dominant with variable penetrance.¹⁰ In hemophilioid state B the disease occurs in both sexes. In the two families best studied, transmission through an affected mother suggests that it may be an autosomal dominant. The inheritance of hemophilioid state C is very similar to that in true hemophilia.

9. Brinkhous, K. M.; Graham, J. B.; Penick, G. D., and Langdell, R. D.: Studies on Canine Hemophilia, Transactions of Fourth Conference on Blood Clotting and Allied Problems, New York, Josiah Macy, Jr. Foundation, 1951, p. 51.

10. Brink, A. J., and Kingsley, C. S.: A Familial Disorder of Blood Coagulation Due to Deficiency of the Labile Factor, Quart. J. Med. 45: 19 (Jan.) 1952.

All of the cases have been in males, except for one in the woman who was reported on in this paper. This patient may be a homozygote or a heterozygote with a high degree of expressivity of the affected gene. Koller and associates¹¹ have reported a family that appears to belong to this category. While only males had the disease, several mothers of the patients had a minimal clotting defect as determined by the prothrombin consumption test. This suggests that although the disease is sex-linked, the clotting defect may be manifest in the heterozygotes. In hemophilioid state D, only one family has been reported.

COMMENT

Undoubtedly some patients reported as hemophiliacs in the past would, if studied today, be placed in the group of hemophilioid states. It seems that in the light of modern knowledge, the term hemophilia should be reserved for the congenital disease in which there is a deficiency in a plasma protein, not adsorbed on barium sulfate, which is precipitated from plasma by 30% saturation with ammonium sulfate. This deficiency results in a series of characteristic clotting tests if the disease is severe or in a low AHF by assay if the disease is mild. "Cross-matching" the plasmas of suspected hemophiliacs with well-established hemophiliacs is a valuable procedure in diagnosis, particularly in the milder cases. By both genetic and chemical criteria, our colony of bleeder dogs are hemophiliacs.⁹ These animals have served as a standard of reference for many cases of human hemophilia.

It is of interest that most studies designed to detect a clotting abnormality in the female conductors of classical hemophilia have been negative. Occasional positive reports have been made, however.¹² In hemophilioid state C, on the other hand, the females appear to exhibit a latent clotting defect, or even a hemorrhagic diathesis. The hemophilic families, reported on in the past, in which female transmitters were observed to have a mild clotting defect may actually have had hemophilioid state C, rather than true hemophilia.

Many cases in the hemophilioid group may have been considered to be hypoprothrombinemia, especially in states A and B. In both of these states, the prothrombin time is long. Several years ago a long prothrombin time in itself was considered by some workers as indicative of a lowered plasma prothrombin. It is now known that the prothrombin time is dependent as much on other factors, particularly the B factor, as on prothrombin.¹³ The case of hypoprothrombinemia reported by Rhoads and Fitz-Hugh in 1941^{13a} was probably an example of hemophilioid state A, since the prolonged prothrombin time was corrected by prothrombin-free plasma.

11. Koller, F.; Krüsi, G., and Luchsinger, P.: Ueber eine, besonders Form hämorrhagischer Diathese, Schweiz. med. Wchnschr. 80: 1101 (Oct. 14) 1950.

12. Haberman, S.: in Transactions of Fourth Conference on Blood Clotting and Allied Problems, New York, Josiah Macy, Jr. Foundation, 1951, p. 101. Owren, P. A.: Diagnosis of Hemophilic Conductor: Proceedings of Third International Congress of International Society of Hematology, New York, Grune & Stratton, Inc., 1951, p. 446.

13. (a) Rhoads, J. E., and Fitz-Hugh, T., Jr.: Idiopathic Hypoprothrombinemia—an Apparently Unrecorded Condition, Am. J. M. Sc. 202: 662 (Nov.) 1941. (b) Owen, C. A., Jr., and Bollman, J. L.: Analysis of One-Stage Test for Prothrombin Time, J. Appl. Physiol. 5: 515 (March) 1953.

SUMMARY

Hemophilia varies from mild to severe in its hemorrhagic manifestations. In severe classical hemophilia no antihemophilic factor (AHF) can be detected in the plasma, whereas in the mildest form of the disease there may be as much as 20% AHF. A simple clotting test, the partial thromboplastin time, furnishes a sensitive index of the clotting defect in all except the mildest cases of this disease. Normally, there is over a threefold range of plasma AHF, 50 to 170%. A given person appears to have a constant and characteristic level of this clotting factor. A group of persons were found who had AHF values intermediate between normal and hemophilic, 30 to 45%. With stress to the hemostatic mechanism, such as occurs postoperatively, these persons may suffer from transient bleeding (subhemophilia). Data now available suggest that the AHF level is determined by the existence of a series of isoalleles (H , H' , H'' , . . .), the allele in a pair that is related to the higher AHF level being dominant. The milder forms of hemophilia also appear to be allelic. The allelic series may be designated: H , H' , H'' , . . . h^m , h .

At least four separate hemophilia-like hemorrhagic diseases have been described in the past few years. A nonspecific terminology, hemophilioid states A, B, C, and D, is proposed for these diseases, pending clarification of the exact clotting anomaly in each state. All of the hemophilioid states resemble hemophilia in that they have impaired conversion of prothrombin to thrombin and a prolonged partial thromboplastin time. A simple schema, based on partial thromboplastin time and prothrombin time determinations, is outlined for the differential diagnosis of hemophilia and the hemophilioid states.

Smallpox.—Although usually considered to be an extremely infectious disease, smallpox does not have the epidemic potential of influenza or even of chickenpox. In the records of recent outbreaks, spread has usually been traced to direct contact between cases. It is true that spread may sometimes be indirect, for example, through infected bed linen. . . . The virus may survive for months or even years outside the body. . . . Epidemiological evidence suggests that most cases of smallpox are not infectious from the onset of illness but become so at the time of appearance of the skin eruption. This view was strongly held by Ricketts and is supported by recent observations. For example, in the Glasgow outbreak of variola major in 1949, individuals were infected from the first undiagnosed case and many of them were not detected and isolated until the appearance of the rash; yet none of these gave rise to further clinical cases although vaccination of contacts had not been carried out at this time. At the time the eruption occurs there is a large amount of virus in the lower layer of the skin epidermis, but, because of the impermeable nature of this tissue, virus is not shed into the environment until the rupture of vesicles and pustules at a later stage. In the mouth and pharynx, however, this protective layer is absent and lesions break down early and thus rapidly render the saliva infective. We have been unable to demonstrate any inhibitory effect on variola virus of saliva from unvaccinated or recently vaccinated persons; and our attempts to demonstrate variola virus in the mouth during the first two days of the pre-eruptive fever have so far been unsuccessful. In acute cases of purpura variolosa, however, where bleeding may occur under the skin from mucous membranes soon after the onset of illness, the patient may be infectious throughout the febrile period. A. W. Downie, M.D., and A. Macdonald, M.D., Smallpox and Related Virus Infections in Man, *British Medical Bulletin*, no. 3, 1953.

THE MEDICAL PREPARATION OF A MEDICOLEGAL CASE

THE PHYSICIAN'S VIEWPOINT

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When one recognizes that, in the future, the greatest contributions in the field of medicine are likely to lie in that area relating medicine with the social problems of the community, it becomes at once obvious that forensic medicine by its very medicosocial nature represents an area that is ripe for development at this time. Much of the expert testimony presented in courts in this country at this time is of decidedly low quality, reflecting no credit to either medicine or the law. Indeed, by the very nature of the methods by which this evidence is gathered and presented, such expert testimony frequently works against the best interests of justice. A conference of this kind, therefore, serves a most useful purpose, in that it pinpoints the problem and provides an opportunity for its analysis and the development of ideas leading to its improvement. I believe, therefore, that the example that you have set today in the development of this program is one that is worthy of emulation by the higher centers of learning in the rest of the country, and I do hope that its influence will become widespread. If by good fortune this does occur, and the medical schools are stimulated thereby, one sincerely hopes not only that the subject will be taught in the didactic sense, as is true for the most part at this time, but that attempts will be made to give the undergraduate medical student what might be called "clinical" experience in the law courts, whereby opportunity is provided him to see a court in action with the testimony of witnesses, technical, expert, and otherwise.

PRELIMINARY CONSIDERATIONS

In discussing now the medical preparation of a medicolegal case, let me point out that medicolegal work demands a distinctly different mental attitude on the part of the physician from that applicable to the general care of patients. For example, in medical practice the physician has ample time to observe the daily changes in the disease of his patient and by means of certain diagnostic aids is able finally to arrive at a diagnosis through a succession of observations and on this basis to administer the indicated treatment. Compare this now with the doctor in court who is called on to render expert medical testimony. In contrast to the case in his medical practice where he has had many hospital or patient days to formulate his final opinion, on the witness stand the doctor has only one day in court. In order, therefore, to utilize this to its fullest advantage, he must come adequately prepared to testify on the basis of a full knowledge of the facts, coupled with sufficient medical experience in the particular field to enable him to render a final opinion that will withstand the rigors of cross examination by the opposing attorney and thereby carry full conviction in the eyes of the jury. To do this efficiently entails a good deal of preliminary preparation prior to testifying as well as some knowledge of court procedure. The basic elements involved in such preparation, first on the part

of the physician and then in conjunction with the attorney for his side, constitute the basis of my presentation this afternoon. At the outset, let me say that my succeeding remarks must not be construed to represent a fixed pattern of preparation in every medicolegal case, for obviously cases differ as to the importance of the problems involved, with the consequent need for varying degrees of effort, time, and preparation.

Assume, then, that the medical expert on the basis of a request from a lawyer decides to take a case. His first responsibility prior to its preparation is to review the working data presented by the lawyer to him. This cannot and should not be done by the only too common practice of a single telephone conversation. Rather, it is necessary for the lawyer and the doctor to meet in person and to study with some care the information currently available. Parenthetically, I might add that it is fair to say that much of the medical information initially supplied by the lawyer lacks many details that are necessary for a full and proper medical evaluation of the problem. After this personal contact and the review of the evidence, the medical expert has a choice of one of two approaches, depending on the importance of the case. Thus, if he feels that there are sufficient medical facts available, even although they are admittedly incomplete, and that these facts will be strong enough to provide him with the basis for sound testimony on the witness stand, then he will accordingly prepare his testimony along these lines. If, on the other hand, the case is of great importance, or the medical facts are scant, it becomes necessary for the medical man to so inform the lawyer, emphasizing at the same time the need to have an investigator seek to obtain further medical facts, if such be available. After the collection of these, the physician then prepares his case for testimony.

At this initial interview between the lawyer and the doctor, it frequently becomes necessary for the latter, after a study of the medical data on the case, to point out that, because of the very nature of the problem, there is not at the moment adequate current medical knowledge that would enable him to express a positive opinion on the basis of the evidence, as sound and complete as it is. For example, if, in a person working in an environment in which he is continually exposed to radioactive material, a marked change develops in the blood leading to anemia and death and if at autopsy the presence among other things of a level of radioactive material is shown in the bones above that normally accepted as the limit of tolerance, then there is sound reason for the opinion that death was due to his occupation. On the other hand, if another and perhaps older person working

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in a different environment dies suddenly and at autopsy certain changes are shown in his coronary vessels, such as thrombosis or occlusion by arteriosclerosis, then there are sound grounds for a difference in medical opinion as to whether his occupation was the immediate cause of death. It is in this latter twilight zone of current medical knowledge that many of these medicolegal cases lie. It behooves the medical expert to inform the lawyer that such is the case, and it is further his responsibility to acquaint the lawyer with the views contrary to the opinion he is prepared to express. This, besides helping the lawyer in the preparation of his case, also provides him with the opportunity for deciding whether the medical expert with such views is the man that he would have represent his side in court.

In general then, the first interview between the lawyer and the doctor is a most important single step in the medical preparation of a case, as it gives the doctor the opportunity to decide on the merits of the medicolegal facts and whether he would desire to testify for the lawyer on the facts submitted. It is at this interview also that the lawyer can decide by his estimate of the doctor's approach to the problem whether he is likely to be a good advocate for his cause. Like the juror, the lawyer is not expected to know a great deal about medicine, but, by virtue of his experience with people, he has an opportunity to observe the workings of the doctor's mind in his approach to the problem confronting him. I would advise any lawyer approaching such an interview to study the doctor's reactions as to the evidence supplied him. If he appears to be too ready to accept all the medical facts as supplied and conveys the idea that the case is a "cinch" and that he should have no difficulty winning it, then the lawyer should beware of such a superficial approach, as it is probable that the doctor in question is not likely to give the matter more than superficial attention either in the course of preparation or in testimony in court. A personal discussion of this sort also provides the lawyer an excellent opportunity for estimating the objectivity and poise of the physician whom he contemplates engaging to present his medical side.

Here, too, a word might be said to the physician in respect to the initial contact with the lawyer in medicolegal matters. Many lawyers have told me of the difficulties they have in getting busy physicians to set aside sufficient time for the purpose of discussing in detail the medicolegal aspects of a proposed law suit. The serious lawyer who prides himself on the proper preparation of all the aspects of his case complains bitterly of the unwillingness of the busy physician to devote enough time and thought to study the data prior to developing a case for presentation to the courts. Frequently this works a distinct hardship on the lawyer and certainly on his client, because often it is this physician alone who possesses such evidence in the case as to offer a good guarantee of a favorable verdict to the client. The responsibility of such a medical man is clear, for if he has been willing to treat the case and if such a case is later subject to litigation, then his professional responsibility is to see the case through to trial. With these preliminary remarks, let me now proceed to a discussion of certain general principles that govern medical preparation and testimony.

GENERAL PRINCIPLES GOVERNING MEDICAL PREPARATION AND TESTIMONY

The first and basic principle governing the preparation and the presentation of testimony in a medicolegal case concerns records. Because of the considered importance of this matter, for some years now in the County of Nassau and through the influence of the medical examiner's office, it has been the practice to invite a representative of the district attorney's office to meet each July with the incoming house staff of Meadowbrook Hospital, the county institution, to discuss and outline the significance of accurate medical records, especially on cases that are likely to come to court. Dealing now directly with the matter of medical testimony, it is first of all important for the expert in the course of his testimony in court to give evidence of his objectivity and lack of partisanship, even although he is being paid a fee by one side for his testimony. His acceptance of the case is proof of his conviction that there are medical merits in the claim of the side that he represents. He must also recognize that the opposing side must have certain merit in their medical facts or there would be no litigation. Appreciating this, he will do more good for his side if he shows no reluctance in admitting the validity of the opposing medical facts when under cross examination, providing they warrant it. He should do this to the same extent that he has been willing to point out the existence of this controverting medical testimony to his lawyer in the course of preparation of the case. Such action puts him and his side in a stronger position in the eyes of the jury. In so doing, the medical strength of his side should not in any way be weakened provided there has been sufficient preparation and understanding between him and his legal associate as to how such controverting medical evidence is to be handled in his redirect examination by his own lawyer.

Another principle of importance is the willingness of the medical expert to admit personal limitations in his knowledge when under cross examination. At times, this might seem to be a bitter pill to swallow for the lawyer who employs him, as he would naturally like to assume that his medical witness is the fount of all knowledge. However, I think experience has shown that the jury is frequently more impressed by the medical witness who makes no pretense at omniscience and who is willing to admit lack of personal knowledge when such exists.

Still another general principle is that of expressing oneself on medical matters in the language of the layman, and further related to the use of simple understandable language in testifying is the strict avoidance of a patronizing attitude on the part of the physician, either to the opposing lawyer in the course of cross examination or to the jury when he is called on to explain certain medical facts to them. I think it is very important for the medical witness in court to realize that he is at times viewed by the jury with a certain degree of hostility, based no doubt on the understandable human reaction of a degree of suspicion toward anyone who seems to be deliberately "speaking over one's head." Obviously most physicians do this not for the desire to impress the jury with their knowledge but rather because of the common habit of the use of medical jargon, which is frequently quite unintelligible to the layman.

These in brief are some simple principles that make for better rapport among the physician, the lawyer, and the court and that also serve to enhance the value of the medical witness in the course of his day in court. Leaving now these general ideas, I will next consider the specific steps that must be taken in the actual preparation of a medicolegal case prior to presentation of evidence in court.

STEPS IN PREPARATION OF A MEDICOLEGAL CASE

The data presented under this heading will be divided into cases that are tried in (a) the criminal, (b) the civil, and (c) the compensation courts. It should be stated that a common thread runs through the preparation of all types of medicolegal cases, namely, the need for an adequate and complete collection of the medical facts and then a detailed record of these facts for future reference. While the title of my discussion implies the preparation of the case with the lawyer for the purposes of testifying in court, let me say that, in my opinion, much greater stress should be placed on the actual collection of the medical evidence at a time even when no suspicion of a court trial exists.

Present Status of Medicolegal Procedure.—I will not attempt to express an opinion on the relative quality of the medical facts currently collected and recorded in the medicolegal field in the United States as a whole. I can, however, as a pathologist venture an opinion in that specific but fairly broad field of medicolegal work in which death occurs and where subsequently a criminal, compensation, or civil case ensues. I have no statistical facts on this matter, nor do I know how to acquire them, but I think nevertheless that it is perfectly safe to say that the number of such cases in which autopsy is performed by inexperienced physicians in this country, inexperienced in the sense of not having had special training in pathology, far outweighs those done by trained medical specialists in this field. Let me remind you that an autopsy performed in a case in which death occurred under suspicious circumstances might, if poorly handled, be indirectly the means of condemning an innocent man to death or contrariwise of freeing a criminal. So you see that in handling the medical preparation of the medicolegal case, one must get to the fundamentals of the problem, namely, the basic medical skill and experience necessary for the initial gathering of the evidence.

We must face the facts clearly. The quality of medicolegal work being done in this country comes close to the borderline of being a menace to the life, the liberty, and the substance of many of our citizens. I feel a singular delight in being able to voice this opinion before this audience, as I know full well that the state of Michigan is cognizant of its responsibilities in this field and has recently passed Senate Bill 1293 in the legislature, directed toward the abolition of the outmoded coroner system and its replacement by a medical examiner system. Here, I should like to pay a special tribute to the untiring efforts of your Dr. LeMoyne Snyder of Lansing, who has worked indefatigably during the last 17 years in an effort to obtain the passage of such a bill. At present, the bill allows the individual boards of supervisors in counties of your state to determine for themselves whether the medical examiner system shall replace the

coroner system. This modernized approach should improve greatly the quality of medical testimony in court. I cannot let this opportunity pass without emphasizing what I consider the most important legislative advance in this field, and that is the establishment of a wide legal framework for the investigation of the circumstances surrounding the deaths of persons in the community other than those suspected of being of criminal nature.

Lest I be accused of being partisan let me immediately say that, if a coroner's system operating in a community is provided with an inclusive enough legal background and if the law is administered through the functioning of physicians well-trained in pathology and forensic medicine, then the quality of medicolegal work provided in that community should not be greatly different from that rendered under the more modern type of medical examiner's system. One has only to think of the excellent activities of the coroner's system in Cleveland to recognize this. The same is equally true in other parts of the country, notably in Louisiana, where an inclusive coroner's law has been rewritten recently.

Beginning the Investigation.—Returning now to the main thread of the discourse, let me briefly consider the steps in the preparation of evidence in the first type of case, namely, a criminal case. Here one must emphasize the value of having a single medical investigator follow the case through from the actual scene of occurrence of the death to the witness stand. The information that the forensic pathologist obtains from a personal inspection at the scene of the crime is of fundamental importance. It is almost mandatory for him at the scene to record pertinent facts, such as the position of the body, the nature of the immediate physical surroundings, and the careful search for weapons, bullets, poisons, and the like. Coupled with this should be interrogation of either the witnesses to the crime or the persons in physical proximity to the location of the body at the time the police and the medical examiner arrive at the scene. An attempt should also be made to obtain photographs of the scene. This is usually done by the police, and special attention is paid to the location of the body and of important objects, by the device of special markings, markers, and the like.

An important part of this investigation is the proper identification of the deceased, with the name and address, and relationship if any of the identifying person. The removal of any portable objects that might be necessary in the investigation and that might later be used at the trial must also be carefully attended to. Such objects must be marked properly, catalogued, and placed in the safe keeping of a responsible party associated with the investigation, be it the medical examiner, the coroner, or the police. After this, the body is now in the custodial care of the forensic pathologist, and from here the chain of evidence is gradually forged. The intact preservation of this chain is something that cannot be too strongly emphasized. I believe that in many of the large jurisdictions, whether they operate under the coroner or the medical examiner it matters not, insufficient attention is paid to the preservation of this chain of evidence. I have often wondered what would happen to the expert medical witness in a major criminal case if the opposing lawyer spent

time probing into the question as to the real continuity of the evidence in respect to the handling of the investigation. Indeed, I know of an occasional case in which, because of laxity in this respect, the medical evidence was nearly upset by the simple expedient on the part of the opposing attorney of casting doubt on the proper identification of such things as organs of the diseased, improperly submitted to the toxicologist for examination. This matter is extremely important to the forensic pathologist, and he should make every effort to be certain that, from the time the body comes in to his care, until he testifies on the witness stand, he can personally vouch for lack of interference or tampering, either with the body or with the material removed therefrom at the autopsy for subsequent laboratory examinations. He must be certain on the witness stand that the opinions expressed on the materials examined represent such material coming from no other person than the dead person. In a large organization this is not always an easy matter, as the possibility of mixing or loss of specimens always exists. By setting up a system of cross checks as a general routine in the operation of his office, the forensic pathologist can easily avoid this dangerous error. For example, if the body is to be kept in the morgue overnight, it should be kept under lock and key. Organs that are removed for various laboratory examinations, including toxicologic tests, should be personally delivered to the laboratory technicians and signed for on receipt. Specimen containers must be labeled before specimens are placed in them, not after, as is often the case, and the name on the label should be checked by the pathologist before the specimen is placed in the container. Similarly, in connection with the withdrawal of blood for chlorides from the right and left sides of the heart in cases of drowning, it is important that the pathologist read carefully the labeled bottle and that the blood from the side corresponding to the label is placed in the proper bottle for subsequent chemical examination. Technicians and morgue workers are human and are subject to error. Such error can be readily avoided, however, by setting up beforehand a routine system and by carefully watching the material when it is being routed from the autopsy table to the various departments in the laboratory for examination. A further precaution should be taken, especially in the case of the organs retained in the toxicology laboratory. Such organs are likely to be kept for several days during the time that repeated determinations are being made and should be kept in a refrigerator under lock and key. If these simple precautions are observed, and if during the testimony in court any questions along these lines are raised by the opposing attorney, it places the medical expert in a favorable position in the eyes of the jury, if he can recount the custodial system by which he assures himself of accuracy of examination on material studied by him.

The Autopsy.—Space does not permit any detailed description of the methods surrounding the proper performance of a medicolegal autopsy. Suffice it to say that the emphasis on various phases of the examination will depend in large measure on the nature of the problem being investigated. I think it an unsound practice to approach any of these problems with what might be called a fixed routine. For one thing, such a routine frequently

makes the examination stereotyped and removes the natural keenness of interest that should be present when one handles the problem as an individual matter. Despite all this, there are certain minimal essentials that must be observed in each case. One of these deals with the examination of the clothing while still in place on the body, with the proper and detailed recording of bullet holes, powder marks, knife slashes in the fabric, and the presence of any foreign or extraneous material on the garments. All these matters must be recorded in detail in writing for future reference and for correlation with the rest of the evidence gathered at the autopsy, at the scene, and through the questioning of witnesses by the district attorney's office and the police.

Similarly, in the performance of the autopsy, great emphasis should be placed on the importance of a detailed external description of the body, with pertinent and detailed notes on the nature of the various wounds and skin injuries. Special attention should be paid to the head, especially in the cases of males with abundant hair or in females, as frequently serious head injuries might easily be missed, because of the absence of any readily visualized external laceration or injury to the scalp. It is well to remember also that the head should be opened, even if there are no immediate external indications, as frequently in the course of this routine step, evidence of definite injury to the bones of the skull and to the brain is encountered, sometimes with little or no evident injury to the external surfaces of the soft tissues of the region. It is well to remember in connection with the external examination of the body, too, that the findings described thereon are more readily appreciated by the jury because of the ease with which they can visualize these changes, in contrast to the difficulties they face when a pathologist is testifying to the presence of internal injuries to the various organs.

This attention to detail in the external examination of the body cannot be overemphasized, especially seeing that it is in sharp contrast to the general approach of the hospital pathologist, whose major concern in the routine autopsy lies with the changes noted in the internal organs. The danger, therefore, is that the hospital pathologist in his limited experience with forensic cases is likely to minimize the significance of the external findings and frequently to spend greater time than is necessary in minute detailed description of organ changes internally that really have little bearing on the case in question.

After having gathered all the necessary information from the performance of the autopsy and the preservation of specimen material for future laboratory examination, all the facts obtained from the post mortem must be put in writing, preferably at the time that the autopsy is being performed rather than at some later date. In this connection, it is important that while the autopsy is in progress a record be kept of the persons who are in attendance in the room. A practical point in this connection is to discourage the presence of any person, medical or otherwise, who has no direct connection or responsibility in the case. I know from personal experience of an occasional instance in which a medical man who casually observed an autopsy and as casually made an erroneous,

statement to the family relative to the findings was unwittingly the cause of exhumation for reexamination of the body after autopsy had been performed.

With the completion of the autopsy, it must not for a moment be thought that in every instance the pathologist now has a final answer as to the cause of death. I think this is a fundamental difference between the approach of the forensic pathologist and that of the coroner's physician. The latter, by virtue of inexperience, often feels that he is bound to supply an immediate answer as to the cause of death after the coroner's autopsy. He does this at great professional peril to himself and certainly to the detriment of the scientific investigation of the facts. One should always remember that the gross examination of the body at autopsy is frequently the starting point for a series of secondary investigations along various laboratory lines, which ultimately provide the means by which the final opinion is reached. Often the coroner's physician, possessing neither the experience in the field nor the technical facilities to conduct these investigations, finds it necessary to supply an answer on the spot. You can readily judge for yourselves how inaccurate such ill-founded medical opinions are likely to be. One of the greatest dangers lies in the too ready "off the cuff" opinion expressed by the forensic pathologist or the coroner's physician at the height of the investigation, when the reporters and the police are at fever heat and when the pathologist feels a hankering for publicity, thus frequently bartering away his good medical reputation for a headline in the morning's paper. If he is a sound medicolegal investigator, he will forego the temptation of immediate "on-the-spot" publicity, in favor of a more secure medical opinion that he later can defend on the witness stand.

Final Preparation.—With the final gathering of all the threads of evidence necessary for weaving the pattern of the final conclusion, the forensic pathologist is now able to appraise various features of the case and in so doing to arrive at an opinion that is much more likely to be objective. He must be extremely cautious in coming to any conclusion that by direction or inference will carry great evidential weight in the final trial, unless he is certain that the weight of the gathered evidence will amply substantiate this conclusion.

Another point should be emphasized in connection with the preparation of his final opinion. He might find from later study of his autopsy findings certain discrepancies that need clarifying. Such clarification should be sought for by a review of his medical facts and by conferences with the police and with any other experts who might be in a position to supply him with the answer. This is especially true in the field of ballistics where paths of bullets are frequently erratic and where it takes an expert to help the forensic pathologist in their interpretation. In this matter of seeking aid and advice from collateral investigators, the forensic pathologist should have no hesitation in admitting his lack of knowledge in any field during the investigation and should show a willingness to discuss and be advised on these matters by suitable experts. It is only by this joint approach that all the facts can be gathered and the evidence clearly defined for trial. When all these various avenues of fact collecting have been exhausted and the final opinion

arrived at, the forensic pathologist has still another and equally important function to perform in the preparation of his case, namely, that of conferring with the district attorney's office preparatory to going to trial. This, incidentally, is one of the weak spots in many jurisdictions, either because of the unwillingness of the pathologist to devote enough time to discussion with the district attorney's office or even perhaps from a disinclination on the part of the district attorney's office to cultivate a close liaison for this very purpose. In Nassau County since the inception of the medical examiner's office in 1938, it has been the fixed practice, except in obvious cases needing little consultation, for the medical examiner and the district attorney's office to meet formally for a review and a correlation of the medical and legal evidence. These reviews frequently take the form of an anatomic demonstration with the use of a skeleton to demonstrate the paths of bullets, knife wounds, blunt force injuries, and the like.

At these joint sessions a broad plan of presentation of the medical facts is evolved. The strong points in the medical evidence are emphasized, and the weak points are also brought under discussion. At times, considerable emphasis is placed on these weak points, because they might well be the basis for the defense. Various probabilities along these opposing lines are discussed, and the trial attorney is advised as to how to bring out favorable medical evidence, and suggestions are offered as to how he might handle the controverting medical testimony. Frequently too, the actual line of questioning is developed through these conferences. All these interviews necessarily take time and effort and obviously need not be undertaken in every case. There are, however, cases in which no regard should be paid to the amount of time involved, whether it be on the part of the physician or on the part of the district attorney, because of the issues at stake. One basic necessity for success is an amicable working arrangement between the district attorney's office and the medical examiner or coroner. In this pretrial stage there must be a free interchange of ideas and a frank admission of the weaknesses of the case as well as an evaluation as to where the main strength in the evidence lies. Speaking from the medical side, I can say that experience has shown that these contacts are most valuable to the physician, as he attains a better insight into the workings of the law and he hopes that his contribution is such that it makes his problems more understandable by his legal associates in the case.

If instances should arise in which the medical expert in the course of pretrial preparation with the legal team senses that it is the desire of the latter either to have the physician shade his opinion in favor of their side, or worse still, to omit from testimony important medical facts that are likely to be damaging to their case, the physician must hold his ground. His interests obviously are not those of helping the prosecution to set or maintain a high percentage of convictions or in assisting the defense through incomplete or "shaded" medical evidence to obtain an acquittal. Rather is it his professional responsibility to maintain a nonpartisan attitude, even though he might be functioning as a paid official in the role of coroner's physician or medical examiner. Fur-

thermore, he should see to it, more especially in criminal cases, that all the medical facts developed in the case be put in evidence, so as to insure their use as readily by the defense as by the prosecution. Fortunately, in many jurisdictions, this right to safeguard the defendant's interest is well handled by the expedient of supplying the defense with a full transcript of the record of the medical examiner's report.

PREPARATION OF TESTIMONY IN CIVIL CASES

The medical preparation of a civil case if such involves a death obviously follows the same principles outlined above. Apart from this type of case, the pathologist is frequently called to testify on causal relationship between some alleged injury and some subsequent medical condition, the commonest of which is cancer. The preparation for this type of case follows the general pattern. The physician should obtain all the past and present medical data that center around the injury and the subsequent course of events. He should first seek to verify their authenticity and their completeness, by means of review of the medical records dealing with the nature of the injury, the location, the duration, and the response to treatment. If such a review establishes the existence of missing links in the chain of evidence, this should be pointed out to the lawyer and suggestions given as to how and where this missing evidence might be found, as, for example, by investigation of the hospital records, on the various occasions of hospitalization both before and after the alleged injury. Conceivably some will raise the question as to the need for such elaborate investigative efforts. Let me say that, if the case is worth taking to trial, it is worth adequate preparation. More time and money spent on good investigative work often means more favorable verdicts, with the obviation of delay and postponements for purposes of obtaining further evidence that should have been available in the first place. The late Dr. Ewing of Cornell University medical school, a great medicolegal expert, used to say that more cases could be won if only more time and money were spent on investigation and less on testimony of medical experts! Furthermore, these investigations along medical lines are best conducted under the advice and guidance of a medical man rather than under a lawyer, as is frequently the case.

In these civil suits, if, after all the medical facts are assembled, sifted, and related and a conclusion arrived at, it is the opinion of the medicolegal expert that the evidence does not provide a fair chance of a favorable verdict, the legal advisor should be so informed with the reasons for such an opinion. On the basis of this, frequently he will attempt a settlement out of court.

PREPARATION OF TESTIMONY ON WORKMEN'S COMPENSATION CASES

At the outset, let me say that the experience in the matter of preparation and testimony in this type of case has been that entirely too little effort is expended by either the lawyer or the doctor on the individual problem. Frequently, the medicolegal expert is provided by telephone or in the corridor of the court with a few sketchy facts and by means of a hypothetical question is asked to express an expert opinion. The referee, ad-

ministering an admittedly generously written law, frequently rules in favor of the worker in the face of medical evidence that, if it had been properly prepared and presented, might well have led to a different finding. The result is that the employer, in the state of New York at any rate, is being forced more and more to assume responsibility for disability and death claims that on their true medical merits lack any clear-cut foundation in fact. This is especially true in cases in which diseases of the heart are concerned, as well as in proved cases of cancer, in which a single trauma allegedly occurs and in which causal relationship is postulated.

It is obviously the duty of the medicolegal expert to see that the worker's interest is protected in keeping with the spirit and the letter of the workmen's compensation law, but, if his testimony is to be of value to the court, he must be certain that his opinion is based on a true knowledge of all the medical facts in the case, including even those that might not appear to have any immediate association with the claim. This has to do especially with the past medical history of the claimant, as frequently this knowledge alone is sufficient to invalidate the claim, particularly in certain types of bodily injury cases in which such a study reveals that the symptoms allegedly related to the injury frequently antedate the time of the alleged injury, as can be easily substantiated by records from hospitals or physicians previously attending the patient.

In this type of case, one of the most important facets is the sequence of time; for example, if it is claimed that a certain injury to the testicle is the cause of cancer of the organ and if a roentgenogram of the chest taken within a week after the injury reveals metastatic seeding of the disease in the lung, there is prima-facie evidence that the cancer antedated the injury. Similar evidence might be available at times through x-ray study in claims in which cancer of the bone is presumed to be the result of a single injury. The moral here is that any compensation case involving bodily injury should be promptly and completely studied, and such study must include x-ray examination, both of the part injured and of such other body areas as are indicated by the medical examination.

In the case of death claims in compensation court, the medicolegal expert must examine carefully the autopsy findings and should attempt to correlate the clinical evidence with these findings for the purpose of determining causal relationship. He should also attempt to evaluate the accuracy of the data gathered by the lay investigators, in respect to the credibility of the statements of witnesses to the accident or injury, keeping in mind the frequency of sharply conflicting statements of witnesses as to time and location and their estimate of the effect of injury on the claimant. A further aid to the expert witness is a study of the stenographic records of previous hearings on the case, seeking discrepancies in the medical aspects of the recorded testimony.

When all this material has been analyzed and digested and an opinion reached, the expert is now in a position to discuss the aspects of the case with the lawyer and can offer advice as to the merits of the claim leading either to a settlement out of court or to a hearing.

SUMMARY

The preparation and testimony in a medicolegal case from the point of view of the physician is a matter that should not be undertaken lightly. When he is invited to testify, he must be certain that his particular experience warrants participation in the particular case. Having decided on this, his approach should carry that objectivity that is necessary to render his opinion of sound medical value to his legal associate in the trial of the case. Prior to the actual trial, he should spend the time necessary in going over the medical aspects of the evidence with the lawyer, reviewing for him the strong and weak points in the case and laying down an actual plan

of trial procedure by which the fullest value of the expert's experience is obtained through the avenues of direct and redirect examination on the witness stand. This type of preparation should be followed uniformly, whether the case be of serious criminal nature involving the life or liberty of the defendant or whether it be of the nature of a civil or compensation case. In so doing he will be rendering proper service through his professional training and experience to the cause of sound medical jurisprudence, something that is sorely needed in this country, and that, I might add, is the inescapable social responsibility of every physician at this time.

Meadowbrook Hospital.

DIAGNOSTIC USE OF RADIOISOTOPES IN A GENERAL HOSPITAL

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and

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Four and one-half years ago a radioactive isotope program was started at Hackley Hospital in Muskegon, Mich. This city is situated about 200 miles from any large diagnostic and clinical center, and it was thought that the demand for radioisotope studies was sufficient to justify establishing such a program in a small general hospital. Our experiences in establishing and maintaining this program will be presented.

In setting up such a program certain factors must be present to assure continued and successful operation. First, and most important, there must be a demand for the services offered. There must also be adequately trained personnel available to administer and operate the department. Physical equipment and space must be available, and protection standards must be maintained. We felt that the demand for radioactive isotope facilities was present. This was due, in part, to the presence in the community of physicians trained at larger centers where such services had been available. Other physicians had become interested as a result of papers appearing in various scientific journals. We were able to form a radioactive isotope committee and meet the requirements established by the United States Atomic Energy Commission. One of us (K. E. C.) became available as radiation physicist on a part-time basis.

An elaborate outlay of equipment is not necessary. One good Geiger-Müller counter giving reproducible and reliable counts is necessary. We have found that, in a small community without the services of a full-time physicist, a standby Geiger-Müller counter is of great help in case of mechanical failure. We use a shielded counter tube with an aperture of 2 cm. that, with a detachable cone, can be reduced to 1 cm. (figure). This will localize small active sources within 0.5 cm., which is entirely satisfactory from a clinical standpoint. In addition to the Geiger-Müller counter it is imperative to have a radiation survey meter to monitor radiation from a protection standpoint.

A high-level radiation laboratory is space consuming, and it is a source of considerable expense in obtaining proper protection and the necessary special instruments. We have solved this problem by having the isotope section of the radiology department at Harper Hospital in Detroit standardize and dilute the concentrated solutions as received from Oak Ridge. We handle the diluted solutions in a low-level radiation laboratory where adequate protection is attained in minimal space with very little special equipment. Such dilute solutions may now be obtained by qualified departments from various commercial sources. The particular radioactive isotopes used for diagnostic purposes are determined by the needs of the local medical group. In our community we have had no experience with radioactive sodium, diiodofluorescein, or iodinated human serum albumin. Our surgeons still prefer the microscope to radioactive phosphorus (P^{32}) in establishing the character of tumors. With only six exceptions, when P^{32} was used for tumor studies, our diagnostic studies have been made with radioactive iodine (I^{131}). This may be explained by the fact that in our community we have no neurosurgeon, thoracic surgeon, or vascular clinic. The vast majority of our studies have been done at the request of general practitioners or internists who view with suspicion the results obtained with the usual apparatus for determining basal metabolic rates and wish an accurate evaluation of thyroid function. We are gradually getting more referrals from surgeons as they realize the advantage of knowing before surgery the location of the pathological areas within the gland.

Patients for diagnostic radioactive iodine studies are hospitalized for approximately 48 hours. This is partially for our own convenience and partly to facilitate excretion studies. The usual tracer dose is 50 μ c of I^{131} , or, in children, proportionate amounts according to body weight. This is given orally to the patient, who has an empty

stomach, about 8:00 a. m. the first morning. The first of the survey counts is started about two hours later. Two additional examinations are made on the first day and at least two examinations on the second day. In making these counts, definite locations over the thyroid region are studied each time. In addition, a general survey of the gland area and supraclavicular regions is done to locate any hyperactive or aberrant localizations. Counts are also made over the episternal notch, manubrium, and body of the sternum to locate possible retro-manubrial or retrosternal extensions of the gland. In this manner we can determine the rate and degree of uptake of iodine by the thyroid gland as a whole, and we can also detect localized variation within the gland. Counts of the liver, stomach, and thigh are also made at each examination. This checks on rapidity of absorption from the gastrointestinal tract, retention of the radioactive iodine in the soft tissues, and remobilization of iodine in the liver.



Small aperture attachment for the counting tube, which is readily attached and reduces the aperture to 1 cm. diameter.

All urine is collected, and the time and quantity of output is recorded. A sample of each urine specimen is obtained and later assayed for radioactivity. In this manner we obtain an excretion curve that can be correlated with the uptake curve of the thyroid gland. We feel that 90% of the administered iodine must be accounted for, and the other 10% can be accounted for by fecal loss, loss in perspiration, and extra-thyroid retention.

TRACER STUDIES

Since beginning our radioactive isotope program we have made 412 tracer studies. Of these, six were done with P^{32} for tumor localizations. All other tracer studies on thyroid function have been done with radioactive

iodine. There has been a marked range in age grouping among our patients, the youngest being five months and the oldest 85 years. It is beyond the scope of this paper to analyze fully the results of all of the cases that have been studied. This will be done in further publications. The breakdown of the diagnosis made is, however, of considerable and acute interest. Twenty-eight studies were done on children or infants. Ten of these were done on seven children who had osteochondrosis of the capitular epiphyses of the femur (Legg-Perthes disease). The studies revealed either thyroid hypofunction or the presence of toxic adenomas. This is in agreement with previous reports by Reynolds and others¹ and by Corrigan and Corrigan.² Radioactive iodine has also enabled us to differentiate hypothyroidism and mongolism in infants.

Of the adult group, thyroid function was normal in 11 patients. Generalized hyperfunction of the thyroid was present in 19 patients, and clinical findings of exophthalmic goiter (Graves' disease) were present in 6 of these. Thyroid function had generally decreased in 16 patients. In 79 patients one or more toxic adenomas were found in the thyroid glands. Submanubrial or substernal extension of the thyroid gland with varying degrees of intrinsic activity was discovered in 80 persons. In these patients, eight glands were postoperative residual or recurrent. In 21 patients mixed gland conditions were found. Colloid goiters were studied in three patients, and in four patients there was no appreciable thyroid function. Degeneration of the thyroid gland was considered to be possible in 18 studies. Metastases from thyroid carcinoma were found in two patients. In five patients thyroid carcinoma was present. Marked circulatory embarrassment was present in three patients, ruling out the possibility of evaluating thyroid function. In 12 patients occult edema was discovered. A definite chemical block was present in 29 instances and to a lesser degree in 21 other patients. Three studies were completely unsatisfactory.

COMMENT

The above results given in rapid-fire order, and without a chart to further clarify them, are confusing. The important point is not the number of patients for whom any certain results were obtained, but that, with the exception of three small groups, the diagnoses could not have been made with any of the single measurement or single time of measurement techniques. We wish to reiterate the statements made before the Section on Radiology by Reynolds and others¹ in 1952: "The criteria of adequate tracer study are: (1) anatomic location of the tissue that metabolizes the isotope, (2) rate of uptake and total uptake of tissue, (3) discontinuities and non-uniformities in tissue masses found, whether in normal thyroid region or elsewhere, (4) rate of decrease of any localization that shows unusual decrease from its maximum concentration, (5) the total urinary excretion, and (6) the shape of the excretion curve." These are not easy criteria to meet, and fulfillment of them requires well-trained and interested personnel. It also requires considerable expenditure of time and energy. Methods may be developed in the future that will ease their accomplishment, but the basic criteria will remain.

1. Reynolds, L.; Corrigan, K. E., and Hayden, H. S.: Detection of Concealed Thyroid Disease by Tracer Technique, *J. A. M. A.* 151:368-371 (Jan. 31) 1953

2. Corrigan, K. E., and Corrigan, H. S. H.: Tracer Studies in Children with Legg-Perthes' Disease, exhibit at annual meeting, the Radiological Society of North America (Dec.) 1951.

The number of chemical blocks of the thyroid gland that have been encountered is high despite careful screening of patients. As referring physicians become more acquainted with the problem, the number of blocks is decreasing, and the problem is becoming less vexing. It is certain, however, that even under optimum conditions a certain amount of unmentioned self-medication will be present. One drawback of the tracer procedure is the expense of hospitalization for two days. If and when physical facilities allow, a selected group of patients may be examined on an outpatient basis and be allowed to collect their own urine specimens. Considering some of the difficulty that we have had with nurses and ward helpers, patients may do as well on this basis as by being hospitalized.

SUMMARY AND CONCLUSIONS

In our experience in a small general hospital, the bulk of diagnostic radioactive tracer studies has consisted of radioactive iodine tracer studies of the thyroid gland. Our method of procedure, with a general discussion of results and shortcomings, is presented. We believe that, as other diagnostic procedures are developed in larger centers, they will be reflected in our procedures. In our experience, establishment of a radioactive isotope department in a small general hospital is a feasible and practical procedure. In this way the advantages of these tracer studies may be extended more generally to aid the practice of medicine.

878 N. 2nd St. (Dr. Emerick).

THERAPEUTIC VALUE OF RADIOISOTOPES IN A GENERAL HOSPITAL

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Consideration of the value of radioactive isotopes as therapeutic agents in a general hospital naturally requires an assessment of their characteristics and usefulness, either as substitutes for less available or less safe instruments presently at hand or as a means to appreciably advance the treatment of disease. The value of any physical agent or drug depends in some degree on its qualities and properties but more importantly on the knowledge, skill, and intelligence of those who apply it. Such is particularly true of the radioactive isotopes, for which there is no antidote and in whose administration there is no reversible reaction. In fact, the isotopes are more dangerous for both the giver and the recipient than those agents that were previously used, and certainly will be more hazardous than helpful if those who attempt to employ them are not fully prepared both physically and intellectually and blessed with better than average judgment.

The early investigation of physiological applications of the radioactive isotopes produced in a cyclotron fortunately was limited by the available quantity. With the advent of the nuclear reactor and its potentialities for greater productivity and variety of the unstable isotopes, the general public and also the medical profession have tended to clamor for another group of "wonder drugs." Little heed has been taken of the fact that the isotopes are not so plentiful nor so innocuous as broomsticks nor graced with altogether bewitching qualities for the discovery and cure of disease. The informed members of the profession are fully aware that the unstable isotopes can be as malevolent and as productive of toil and trouble as Macbeth's witches and their brew.

Before any consideration is given to the use of these agents, there must be acknowledgment by the administrative boards of the hospitals, in spite of their desire that the institution be in the forefront in their community, and by the attending staff, with the desire to do all possible for the benefit of the patients, of the grave responsibility that they propose to undertake in the use of radioactive isotopes. This is a field that will be in the category of research for some time.

Certain minimum requirements as to personnel and physical plant have been laid down by government as prerequisite to permission to procure radioactive isotopes. It is extremely important that the philosophy and urge of "free enterprise" do not bring harm to patients by the observance of these requirements only in the letter of the law rather than in the full spirit. Hence, no hospital should consider the use of the unstable isotopes unless it and its medical staff are fully prepared to sacrifice time and funds, to submerge personal ambition and desire, to work closely as a team in the best interests of the patients, and to realize and accept the responsibility of research in this as yet inadequately charted field.

At present, the types of disease and number of patients peculiarly suitable for treatment with the available radioactive isotopes is limited. Without adequate staff and adequate number of cases for comparative study, no general hospital should try to explore the diagnostic or therapeutic applications of radioactive isotopes.

The second consideration in assessment of the potential value of radioactive isotopes is the purpose for which they may be used, namely (1) as substitutes for agents previously available, either as equivalent in usefulness but (a) more readily available, (b) of greater versatility, (c) of greater power, or (d) with less potential side-effects or hazard; or (2) with the capacity to do a new job, such as by means of selective physiological affinity for a specific organ or tissue. It is evident at once that criteria of (a) physical characteristics and (b) biochemical or pharmacological suitability must be established; and in general each specific isotope will have to be scrutinized under both headings. This is not so necessarily rigid in the matter of substitution for external irradiation as for intracavitary, interstitial, or parenteral administration.

GENERAL CONSIDERATION OF AVAILABLE ISOTOPES

Of the known and probably existing 1,052 isotopes and isomeric pairs, 282 are stable, and 118 have a half life measured in seconds, 199 in minutes, and 96 less

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than 12 hours. Subtracting these and the 49 naturally radioactive elements and their isotopes, there remain some 209 unstable isotopes with half lives of from more than 12 hours to 60 days and 99 whose half lives extend from 60 days to more than 1,000 years. Those with a half life less than 14 hours are relatively impractical and afford some extra hazard; those of greater than 30 to 40 days are not safe for parenteral use. The remaining portion of these active isotopes (about 70) must be studied extensively as to their physical and pharmacological qualities before adequate assessment can be made of their therapeutic value. Only a few, so far, have been shown to be producible in practical quantities with present facilities, to possess suitable and useful physical characteristics, and to be pharmacologically safe and physiologically useful.

The physical usefulness of the radioactive isotopes depends chiefly on their emission of either beta or gamma radiation, the energy of that radiation, and their half life. So far, for external therapy, phosphorus 32 and strontium 90 have had a fair clinical trial among the beta emitters and cobalt 60 among the gamma sources. All three fall into the category of substitutes for presently available radium sources.

For intracavitary administration, sodium 24, phosphorus 32, cobalt 60, bromine 82, and gold 198 in various forms and with various techniques have been found useful. These, save phosphorus and gold, are present substitutions for previously available but less facile radium. Gold 198 and phosphorus 32 in colloidal form are examples of physiologically useful isotopes in the management of serous membrane malignant effusions. About 27 active isotopes possibly are usable internally. The specific avidity of various organs or tissues for a high majority of these is not known. Consideration of the parenteral administration of radioactive substances must include study of not only the full gamut of the alpha, beta, or gamma emission and the half life of each substance but also very specifically the pharmacological safety and biological activity or physiological progress through the tissues. So far only iodine 131 and phosphorus 32 have been proved acceptable.

These various facets of the use of radioactive isotopes emphasize the absolute necessity for a full complement of medical staff, including persons especially experienced in clinical physiology, pharmacology, metabolism, hematology, endocrinology, radiation therapy, and radiobiology, together with radiation physicists and a corps of trained technicians, as well as the required physical plant and instruments to be available in every general hospital that presumes to treat disease intelligently with these physical agents; for this entire field still remains in the realm of research and must be subjected continually to critical review.

SPECIAL CONSIDERATION OF VARIOUS ISOTOPES

With this relatively brief discussion of the general problems associated with the therapeutic use of radioactive isotopes, we may pass on to an even more brief commentary on the few isotopes that have been studied so far.

External Irradiation.—The choice of a radioactive isotope for external therapeutic application must be predicated on availability, its relative safety, facility of manipulation, and the superiority of its radiation as to either (a) virtual total absorption in the superficial millimeters of the tissue, thereby effecting a more satisfactory biological reaction than available with low or medium voltage x-radiation or radium; or (b) a high energy level of sufficiently short wavelength and relative monochromatic character to effect superior depth-doses compared to high-voltage x-radiation or large quantities of radium.

Phosphorus 32, with a half life of 14.3 days, emitting only beta radiation (1.7 mev) with a range of 7 mm. in tissue, appears to be useful in treatment of superficial carcinoma of the skin, some keloids, and localized keratoses. The blotting-paper technique of Low-Beer has been improved on by Sinclair, Blondal, and Smithers at Royal Cancer Hospital by means of the incorporation of 20% red phosphorus (by weight) in polyethylene that can be pressed into thin, flexible, glossy-surfaced sheets before activation in the nuclear reactor.

Strontium 90 (half life 25 years, beta radiation of 0.65 mev, no gamma radiation) in a surface applicator has been shown by Friedell and Thomas to be of significant value in the treatment of the benign vascular lesions of the conjunctiva and cornea. This is an addition, or rather an advance over the older radium D/E applicator.

Cobalt 60 (half life 5.3 years, with an almost monochromatic gamma radiation [1.16-1.32, average 1.25 mev]) affords a relatively ideal agent in the second group for the treatment of deep-seated malignant lesions. A cobalt 60 source of 1,500 curies equivalent can be provided in the nuclear reactors with high flux. Its high activity will afford an energy output of approximately 40 r per minute at 80 cm. source-skin distance. Its use should be restricted, however, to only those therapeutic centers that have at least 300 new cases of major malignant neoplasms per year (to afford sufficient numbers of patients and for selection of cases), that have full staffs, including experienced radiation therapists who personally direct the treatment, observe their patients daily, and are aware of the hazard of high exit doses and the lack of the usual skin reactions common to more conventional x-radiation. The collimation of the beam with reduction of penumbra to a minimum presents a real problem in engineering physics, which we believe has been solved most satisfactorily by Prof. H. E. Johns.

Intracavitary Irradiation.—The selection of isotopes for irradiation of malignant disease within a cavity will depend on whether the lesion is sufficiently thin and widely distributed to utilize beta radiation or its depth and location necessitate a gamma source. Hollow cavity or viscus: A solid source, to be molded or compounded to fit a known cavity, can be afforded by shaping cobalt into a special form or by using beads or pellets. However, inasmuch as metallic cobalt is absorbable by body fluids, a source of whichever shape must be plated with gold or encased in platinum and then activated in the "pile." Certain technical difficulties in proper introduction or fixation of such sources and problems of hazard to per-

sonnel in handling them in this manner must be appreciated. Cobalt 60 can be used thus in carcinoma of the cervix and carcinoma of the maxillary antrum. It also may be employed in cylinder form as a point source suspended in the urinary bladder.

Walton and Sinclair have reported on the rather satisfactory use of sodium 24 (half life 14.8 hours, beta radiation of 1.4 mev and gamma radiation of 2.76, 1.38) in sodium chloride solution, or bromine 82 (half life 34 hours, beta radiation of 0.47 mev and gamma radiation of 1.35, 0.79, 0.55) in calcium bromide solution in a 150 ml. balloon attached to a catheter in selected cases of carcinoma of the bladder in which the lesion does not extend deeper than the submucosa. In their experience, three fractionated doses of $2,000 \gamma r + 500 \beta r$ each at weekly intervals was more satisfactory than a single dose of $3,000 \gamma r + 4,000 \beta r$ for sodium 24 or $4,000 \gamma r + 1,000 \beta r$ for bromine 82. In the female, this balloon may be introduced via the urethra; in the male, via a small incision in the perineum and the posterior urethra.

Serous Cavity (Pleura or Peritoneum): Modification and retardation of serous effusions in those patients with embarrassing pleural effusion or ascites due to disseminated metastatic neoplasm (chiefly from the breast or the ovary) have been accomplished with colloidal gold 198 or colloidal chromic phosphate. The short half life of Au^{198} (2.7 days, approximately 95% beta radiation, 0.96 mev maximum, gamma radiation 0.41) reduces its usefulness at appreciable distances from the source of supply; hence some investigators have recently used the colloidal chromic phosphate with its advantage of the longer half life of phosphorus.

Such colloidal suspensions must be physiologically harmless, must have a particle size large enough to prevent dissemination, must be sufficiently stable to prevent an uneven precipitation, must be available in high specific activity to avoid use of large volumes, must have a short half life to enable delivery of dose in a reasonably short time, and must emit predominantly beta radiation for local effect on the serous membrane but sufficient gamma component to permit external detection of the distribution. Neither gold 198 nor colloidal chromic phosphate can be expected to affect large masses of metastatic neoplasm. Reports on both indicate appreciable reduction of accumulation of effusion may be achieved.

Interstitial Irradiation.—So far cobalt 60 and tantalum 182 (half life 111 days, beta radiation 0.5 mev maximum, gamma radiation 1.13) and gold 198 have proved of value in interstitial therapy of malignant lesions. The absorbability of cobalt has been mentioned. This requires that any Co^{60} source must be sealed in some physiologically inert material. It is more brittle and more expensive than tantalum. Tantalum is physiologically inert. Its higher density, considerably higher specific activity with a gamma radiation of relatively the same wavelength further recommends the use of tantalum. In all interstitial use, local reaction due to beta radiation and alpha radiation of the source material must be reduced to a minimum. Cobalt 60 requires encasement to prevent absorption, and all three (Co^{60} , Au^{198} , and Ta^{182}) should be sheathed in order to reduce or remove the beta component emitted. The relative intensity of Co^{60} is of the order $13.5 r/hr./mc.$ compared with $6.1 r/hr./mc.$ for Ta^{182} .

Gold 198 grains can be used as a substitute for radon seeds; however, these should also be encased in platinum or plastic. In general, they do not appear advantageous compared to radon in gold seeds. Considerable study is being pursued by the University of Iowa group on the interstitial injection of colloidal gold 198 in prostatic malignant disease. Some encouraging evidence has already been accumulated, but this work is distinctly still in the research phase. The general hospital that admits less than 500 new patients with malignant disease in a year will have little use for intracavitary or interstitial means of treatment with radioactive isotopes.

Parenteral Administration.—Therapeutic use of radioactive isotopes by the parenteral route requires first that the active element and its compounds are not toxic and are physiologically useful to the tissue that one desires to affect. Secondly, the active element must not be one that the body may substitute for another (such as strontium 89 or yttrium 90 in replacement of calcium in bone), transfixing the element in tissues that are not to be irradiated; nor must the element have undesirable radiation quality or half life.

Selection for therapeutic value will depend on: (a) the degree of selective chemical affinity or use that a specific tissue or cell type has for the element and the metabolic activity of that tissue or cell; (b) the degree to which the "uptake" (by either absorption or utilization) will be effected without material deleterious physical or chemical effect by the element or its carrier on other cells, tissues, or the body as a whole; and (c) the extent to which its radiation will benefit the local cell or tissue, an intimately neighboring tissue complex, the whole organ or entire body, with less deleterious effect on the tissue or whole organism than some other therapeutic agent.

Radioactive Iodine: It is readily apparent that radioactive iodine meets virtually all the above-mentioned criteria in regard to thyroid disease. The selective chemical affinity for and use of iodine by the thyroid gland, with little need for iodine in other organs or tissues save as protein-bound in thyroid hormone, is peculiarly favorable. The association of disturbed thyroid metabolism with other metabolic and certain cardiovascular dysfunction increases the value of this agent. Its half life of 8 days, with beta radiation of 0.595 mev penetrating about 2.2 mm. and adequate gamma component to permit external detection in both mass and detail, as well as dominant excretion via the urinary tract, make this isotope an almost ideal example.

The two previously established means for treatment of thyroid dysfunction are not entirely satisfactory. Surgical subtotal resection in the best of hands affords control in but little over 60% of those operated on, has today a small but definite mortality risk, includes some hazard to the recurrent laryngeal nerve and parathyroid glands, requires hospitalization, and is not always practicable.

The antithyroid drugs have afforded better means of preparation for surgery, to a certain degree allow election of time for surgical intervention, and in some cases have "relieved the patient of his symptoms while he cures himself" (Blomfield). But the long-term results tend to be disappointing, not over 50% stabilize after one course, the patient tends to revert to his thyrotoxic state when

the drug is withdrawn, and the toxic side-effects of propylthiouracil and methylthiouracil (agranulocytosis, drug sensitization) are not favorable.

The gradual depression of thyroid hyperfunction afforded in the specific cellular depletion of the gland by I^{131} without damage to other tissues is a strong recommendation for its use, especially in selected cases. Hospitalization is not required; there is no surgical hazard nor toxic side-effect. Certain observers consider that exophthalmos is reduced to a greater degree than with surgical ablation. Neither pressure symptoms nor cardiac complications are significant as contraindications. The gland reduces in size, and there is certainty of correction of dysfunction in time, with supplemental dose if required. Large series or groups of series for statistical analysis are not yet accumulated. Some observers believe that 85% of patients can be brought to a euthyroid state in about 3.5 months with a single dose.

At our present state of knowledge in the matter, the indications for I^{131} therapy are: (a) diffuse toxic goiter in patients over 47 years of age, (b) diffuse toxic goiter in younger patients when antithyroid drugs fail and surgery is refused, (c) hyperthyroidism complicated by, or associated with, cardiovascular disease, and (d) recurrence after surgical intervention. The major contraindications appear to be: (a) acute hyperthyroidism in younger patients, (b) pregnancy, and (c) nodular goiter. In each case, however, serious consideration must be given to the possible advisability of either surgery or a test of the antithyroid drugs in preference to I^{131} . In patients under consideration for I^{131} therapy, careful tracer studies should precede decision. These must include basic and subsequent periodic mass counts, together with careful scanning of the thyroid area for irregular uptake, and urinary excretion counts over at least 24 hours, preferably longer. Assessment of the resultant curves is not valid unless compared with similar studies of presumably normal persons residing in the same geographic area. Supplementary or comparative observations on the basal metabolic rate, blood cholesterol, and serum protein-bound iodine are important. We find that hospitalization, or at least day hospitalization, of the patient is necessary, in order to obtain adequate periodic counts and to collect the urine for excretion determination.

The dose considered therapeutic for nonmalignant thyroid disease varies from observer to observer, and in any one group there will be an appreciable variation in effectiveness dependent on the metabolic activity of the patient and his thyroid. We consider at present that it is better to administer a standard dose and repeat it in three to four months if required. The optimum average dose is probably in the range of 8,000 to 10,000 rep. Some have been brought to a euthyroid state with 4,800 rep.

A latent period of two to three months is to be expected before radiation effects are clinically manifest. Antithyroid drugs may be required during this period. Careful reassessment is necessary before any supplemental dose is administered. If the response to the initial dose has been rapid, further delay before additional treatment is advisable. The clinical reaction must be observed closely, especially as to remission of symptoms, change in size

of the gland, and subsidence of tachycardia or other cardiovascular signs; together with any alteration of the peripheral circulation.

It should be emphasized that similar results can be produced with properly managed conventional x-radiation of the thyroid. Therefore, unless a general hospital determines that it has real need for and must inaugurate an isotope program with its attendant requirements of staff and physical plant, if that institution has adequate therapeutic x-ray apparatus properly operated by a well-qualified and experienced therapist, there is not sufficient additional value in radioactive iodine therapy to warrant the required investment and additions to staff for that alone.

Since Hamilton's first observation and Seidlin's initial report on treatment of malignant thyroid neoplasm with I^{131} there has been little advance in methods or means to cause the predominantly non-iodine-metabolizing thyroid malignant lesions to utilize radioactive iodine. The early small, palpable, nodular tumor confined to the thyroid gland and without metastases is best managed by surgical removal of the lobe or subtotal thyroidectomy, with or without dissection of all regional nodes. For the large, rapidly growing mass, with or without pressure complications, radioiodine therapy is too slow and x-radiation preferable.

In the realm of distant metastatic deposits, I^{131} seems to have some appreciable value, especially if the thyroid gland has been removed almost entirely. Total body tolerance of the relatively high dosage required is an important factor in conjunction with the avidity of the gland proper or its metastases for the active iodine. The antithyroid drugs and thyrotropic hormone may assist, but there is some hazard in the precipitation of a myxedematous state by the administration of large doses of thiouracil for some weeks and then sudden withdrawal in preparation for a therapeutic dose of I^{131} . The total number of cases of carcinoma of the thyroid in even large centers for diagnosis and treatment of malignant disease of all kinds is so small that no general hospital is warranted in providing for this type of treatment especially.

Phosphorus 32: Hope has been entertained that phosphorus, required in the normal metabolism of bone and a common constituent of the hemopoietic tissues and cells would prove to be of specific value in the blood dyscrasias and malignant diseases. Considerable numbers of observations have been made as to its effect in acute and chronic leukemia, polycythemia, the malignant lymphogranulomas and lymphosarcomas, and multiple myeloma.

So far there is some evidence that phosphorus 32 offers significant advantage over the more ancient methods and means. However, the general hospital, well-staffed and equipped for proper roentgen therapy and with members skilled in the use of chemotherapeutic agents in these malignant diseases, as in the case of radioiodine, should not embark on an isotope program for this alone and should include such treatment in a general isotope research plan only if its clientele includes annually an appreciable number of such cases.

SUMMARY AND CONCLUSIONS

The radioactive isotopes afford, in but a few instances so far, means whereby nonmalignant and malignant disease may be controlled more easily or less expensively than with the older or more accessible methods. The use of virtually all of these isotopes is still in the field of clinical research.

Cobalt 60 is at present useful as a substitute for 3 million volt x-radiation in deep-seated malignant disease. Its use should be restricted to centers having large numbers of new cases per year, in order to afford adequate selection and comparison of the clinical material for research purposes. Strontium 90 in a surface applicator can be used for vascular lesions of the conjunctiva and cornea and is an improvement over the radium D/E applicator. Colloidal gold 198 and possibly phosphorus 32 in a colloidal chromic phosphate preparation can be used for the amelioration of serous or sero-hemorrhagic effusions in the pleural or the peritoneal space associated with disseminated malignant disease.

Sodium 24 or bromine 82 in solution, encased in a plastic balloon, are useful for the treatment of widespread

superficial carcinoma of the urinary bladder. Cobalt 60, tantalum 182, and gold 198 offer considerable promise for interstitial irradiation as substitutes for and possibly improvements upon radium and radon. Iodine 131 has proved to be so far the nearest approach to the ideal radioactive isotope for parenteral and selective therapy of thyroid disease. Phosphorus 32 has certain possibilities in the dyscrasias and neoplasms of the hemopoietic tissues.

In general the entire study of radioactive isotopes as therapeutic agents is still in the realm of research and should be so considered. No general hospital (a) that discovers and treats fewer than 500 new cases of malignant disease or 100 of thyroid disease per year, (b) whose staff is not fully diversified and especially skilled in clinical physiology and radiation therapy, with an experienced radiation physicist or biophysicist, (c) whose staff will not subrogate all personal interest to close teamwork in such an investigative program, and (d) whose administration is unwilling or unable to afford the physical facilities required should consider therapeutic application of the radioactive isotopes at this time.

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THE RADIOISOTOPE PROGRAM IN THE GENERAL HOSPITAL

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The time is rapidly approaching when a radioisotope program in the general hospital will be taken as much for granted as any other laboratory service. Its scope will depend on the size of the hospital and the interests of the staff, but we can safely say that it will include thyroid function studies, blood volume determinations, radioactive phosphorus (P^{32}) therapy of leukemia and polycythemia, radioactive gold (Au^{198}) therapy for ascites incident to generalized abdominal or pleural carcinomatosis, and radioactive iodine (I^{131}) therapy for exophthalmic goiter. In addition, the radioisotope program may include localization of brain tumors and liver metastases, determination of extracellular fluid volume, isotope clearance measurements for various tissues, studies of peripheral vascular disease, and various types of therapy. Foreseeing this and also wishing to be among those to derive benefit from any new agency, hospital medical boards and administrators are studying procedures and requirements for inaugurating such a program. This includes, on the one hand, providing adequate space and equipment and, on the other, solving problems of personnel, training, procurement, and general techniques. The former considerations have been covered in the preceding discussion. I propose to discuss generally certain points regarding the others.

There has been, in some quarters, the feeling that the Atomic Energy Commission is unduly restrictive in limiting use of isotopes to trained personnel, under stipulated conditions. Let it be said at the outset that the commission is anxious to have as wide employment as possible, compatible with the safety of all concerned, of the non-military products of atomic energy. It is because of the

very real danger of injudicious use of these materials that the restrictions have been set up. Everyone is aware of the tragedies that followed early incautious use of x-rays and radium; it is essential to avoid a repetition of this. The primary concern of the Subcommittee on Human Applications is the safety of patients, doctors, technical staff, and possibly "innocent bystanders." Beyond this they may express an opinion as to the feasibility of a procedure, but they do not attempt to pass on its value. Feeling that responsibility for an isotope program should be vested in a group rather than in an individual, the advisory committee recommends that every institution wishing to use radioisotopes form an "isotope committee" to supervise and control use of these materials. Membership of this committee should include a hematologist, an internist, a person experienced in assay of radioactive materials and in protection of personnel against ionizing radiations, and, when possible, a therapeutic radiologist and a qualified physicist. The latter two are essential when therapy is to be done, although they may serve on a consulting basis and not be staff members.

In commencing a radioisotope program, the person who is to take the responsibility for patients must have some firsthand knowledge and experience in isotope uses. After he has acquired some experience in the uses of a few isotopes, he may make use of others without taking additional training, provided no new or great radiation hazards are concerned. In applying therapeutic pro-

cedures that have been developed elsewhere, a brief period of observation is recommended, even for experienced users of isotopes, since this may aid in avoiding pitfalls. Minimum criteria for the physician who will use or directly supervise the use of radioactive materials have been set forth by the Isotopes Division. He must be an accredited physician in good standing with his local medical society and must either have had previous clinical experience with radiation or radioactive materials or be directly collaborating with a person possessing such training and experience. Minimum experience for use of I^{131} , P^{32} , and Au^{198} includes three months' active cooperation in a group using these isotopes and a month of actually handling the isotopes and participating in the management of cases. Unfortunately, there is a scarcity of facilities for such training, especially in smaller towns. However, various institutions are beginning to offer short courses combined with visiting programs; it is hoped that before long this "bottleneck" will be removed.

The function of the radioisotope committee is to review applications for use of isotopes within the institution, primarily from the point of view of radiological safety, but they may also serve in any advisory capacity they feel is indicated. They should be an active group, keeping in touch with all the developments of the isotope program and not leaving responsibility to the chairman. They not only should approve a program at its inception but should review it regularly by means of progress reports. They must be in close touch with the radiation safety officer for the institution, who is usually a member of the committee.

The radiation safety officer will usually be either the physicist or the chemist in charge of the isotope laboratory, or the radiologist, or he may be anyone with the necessary knowledge. He has responsibility for maintaining radiation safety throughout the institution and should have authority to enforce his recommendations. He will make sure that all handling procedures are adequate for safety and will instruct personnel on cleaning up after any spill and on disposal of radioactive waste at any level. He will provide instructions for residents, nurses, orderlies, and other attendants not only to make sure that no dangerous habits are formed but also to make sure that no ridiculous extremes of safety requirements are set up. Such an educational program is frequently essential when the use of isotopes is started in an institution. Personnel who have never worried at all about patients who have fairly large quantities of radium in their bodies, such as women patients with cancer of the reproductive organs, suddenly become much concerned about patients with tracer or small therapeutic doses of isotopes. Assurance should be given that such patients present no hazard and that the only problems come with those receiving therapeutic doses in excess of about 30 mc. of I^{131} or Au^{198} . As for disposal of excreta from patients undergoing isotope tests or treatment, no special plumbing facilities are necessary. As a matter of fact, it is seldom that special instructions need be issued about this, unless urine or feces are to be saved for laboratory study.

In addition to the isotope committee and the radiation safety officer, the isotope laboratory must maintain at least one technician who will do the actual work of standardizing and dispensing the radioactive material and

doing the routine measurements on patients and specimens. Unfortunately, at present there are few places that train such technicians, which means that someone in the organization must be prepared to undertake this responsibility. If there is a radiation physicist, he will be qualified; usually the radiation safety officer will also be qualified. If this training is to be undertaken by a clinician, the isotope committee should make sure that he is conversant with fundamentals of Geiger counting, limitations of the instruments, and elementary statistics of counting (to give proper significance to background and other counts), and that he appreciates the value of plateau checks and frequent calibration and the significance of the geometric relations of counter and sample or patient. A technician can learn to use a counter in five minutes; it may take her as many months to learn how to avoid all the pitfalls between receiving the material from Oak Ridge and turning in a correct report to her supervisor. The dispensing of calibrated solutions by chemical houses or by consultants may minimize the chance for error in calibrating Oak Ridge material. On the other hand, it may give a false sense of security. The need for accurate pipeting and accurate application of decay curves is just as great and so is the need for all precautions regarding background, patient, and sample counting. College graduates with training in any of the laboratory sciences have made satisfactory technicians. It is felt that this type of education is highly desirable. A person with less schooling could certainly learn the procedures but would seldom be able to develop an intelligent understanding of them.

With the isotope laboratory ready to function, those who are to use the materials obtain from the Atomic Energy Commission copies of form 313 for each isotope and file their applications. The first application submitted should contain a list of the members of the isotope committee, with their qualifications, and an inventory of equipment available for measurement and survey purposes. This information never needs to be repeated in subsequent applications unless radical changes have taken place. On approval by the Subcommittee on Human Applications, isotopes may be obtained and work started. Some institutional authorities may be unwilling to commit space and invest funds for an isotope laboratory and equipment and then face the chance of having their application turned down. It may be said at once that, when an institution has complied with the requirements, it is extremely unlikely that authorization will be withheld. However, an acceptable alternative after establishing the local isotope committee is the presentation to the Isotopes Division of the equipment and space that will be acquired if the application is approved. Approval will then be issued contingent on completing the layout. The Isotopes Division maintains a consulting service that may be valuable in setting up an isotope laboratory in a hospital. Through correspondence they will answer questions on such subjects as methods, equipment, protection, and standards. They will also send a field consultant to give on-the-spot advice. Various professional consultants also offer such service.

As to the integration of the isotope laboratory into the hospital organization, few specific recommendations can be made. As tests become routine, they may be administered in the same manner as other clinical tests

such as those performed in the clinical laboratory. The result of the test may be reported without interpretation, leaving this to the physician who asked for it, or an interpretation may be furnished by the director of the isotope laboratory or his assistant. The first method can be illustrated by a report that simply gives the percentage uptake of radioactive iodine at 24 hours, without interpretation; this is the same procedure as used in giving the result of a basal metabolic rate measurement. On the other hand, a report of the percentage uptake might be accompanied by a statement as to its probable clinical significance. The former method could be used only in an institution where staff members were well aware of the significance of reported results. Therapeutic programs should be incorporated into the regular radiation therapy division; they are simply another form of radiation treatment. For special problems the radiologist will want to work in collaboration with other specialists, just as he does in the use of radium or radon interstitially.

While isotopes are comparative newcomers to the field of medicine, they have already been found valuable in many ways. There is no doubt that they will be applied more widely and that more and more general hospitals will establish units for their use. It is probable that units will generally be started on a relatively small scale to do the procedures most widely accepted, but provision should always be made for expansion of services and personnel, for this is inevitable in a progressive institution.

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SPECIAL ARTICLE

MEDICAL ORGANIZATION IN NATIONAL CATASTROPHE

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This report is concerned primarily with the standardization of surgical treatment of mass casualties in times of national catastrophe and certain organizational measures that are essential in effecting large-scale medical treatment. The responsibilities of our profession during times of disaster are grave, and the problems of organizing and directing the medical effort during such times are complex. To give some insight into the magnitude of this potential challenge to physicians, some of the surgical problems are reviewed.

In speaking of mass casualties, one enters a field that is foreign to the experience of American medicine, for our nation has never been confronted with the medical problems incident to the civilian catastrophe of modern total war. Nothing in our history has prepared us for the destructiveness of modern weapons, and even American civilian physicians who served in World War II had but little contact with the treatment of mass civilian casualties. Those who were experienced in these lines will find

that advances in both weapons and treatment have caused changes in medical thinking during the past decade.

It is difficult to grasp the magnitude of this potential challenge to the medical profession unless one realizes the modern concept of warfare. Historically, wars were fought by conscriptive armies who bore the brunt of trauma and who only indirectly drew upon the energies of the civilian population that supported them. This concept has become totally obsolete, and modern warfare is a matter of total national output to prevent total national destruction; the efforts of the civilian members of our society are as essential to the survival of a nation as the efforts of the combat forces. This change in concept is due to the tremendous advances in technology of modern warfare as well as the intricacies of a modern society. For example, it may take one bomber with a crew of three men to annihilate a target and materially weaken the enemy's ability to carry on war; yet behind this one bomber there lie the efforts of hundreds and even thousands of persons who participated in the creation of this weapon, commencing with the raw products of its component parts and going on to the finished machine. Therefore, future warfare probably will not differentiate between the military and civilian population, because to destroy the source of this bomber is just as effective, if not more so, than to destroy the finished product. This makes the civilian population in future wars more vulnerable to attack and disaster than ever before in history, and we should never delude ourselves into believing that humanitarian considerations will save us from wilful destruction when the enemy's survival may depend on the annihilation of our ability to produce lethal weapons. Although we sincerely hope that such a grim state of affairs will never materialize, American medicine must be prepared to handle mass civilian casualties, because in the ability of medicine to restore its civilian element may rest the survival of our nation.

In looking toward methods of handling mass civilian casualties, it is only natural that one looks to the armed forces, for they more than any other branch of American medicine have had experience in such lines. In this respect, it is essential to emphasize that there is no fundamental dichotomy between civilian and military medicine. Medical lessons learned in the armed forces are fully applicable should the civilian rather than the soldier become a victim of modern warfare.

MOVING CASUALTIES

An example of knowledge gained by medicine in the armed forces that can be applied in times of need to civilian practice is that of moving casualties. Patient evacuation has been an extremely important factor in contributing to lower mortality and morbidity rates of soldiers wounded in action and in times of national catastrophe could equally serve the interests of civilian casualties if intelligently applied. The ubiquitous helicopter with its almost unlimited directional capacity for short flights as well as the transoceanic and transcontinental range of the larger planes have given the wounded two major life-saving advantages, those of time and space, or in other words, early medical care in an environment best suited to bringing about recovery. On superficial consideration this factor of evacuation may not appear applicable to

civilian catastrophe. Yet in the event of critical major disaster to our larger metropolitan areas with resultant devastation of buildings and utilities, it may become necessary to transport our civilian wounded to adjacent towns for medical care. This would require the establishment of a medical organization patterned after that of the armed forces in combat operations with effective triage and rapid evacuation of patients as well as mobility of professional personnel.

In the event of an atomic attack on our nation, the problem of enemy air strafing of ambulance planes probably would not complicate the evacuation of patients within our continent, so that the only limitations would be those of the availability of planes and their operational facilities. Certainly in the case of critical destruction of certain of our large metropolitan centers there would be a distinct advantage in the evacuation of patients to surrounding or more distant satellite unharmed communities where definitive or even emergency care could be administered under a more normal environment. Unless one actually has observed air evacuation in action, it is difficult to appreciate the comfort, speed, and numbers of patients thus transported. Commercial transport planes should have incorporated under their plush cabin fittings the necessary attachments to support stretchers should the necessity for such conversion arise. When this is done at the time of manufacture the cost is insignificant and the availability in the event of emergency almost immediate.

CONTROL OF PATIENT FLOW

The armed forces have learned the necessity for a regulating office responsible for the direction of "patient flow." Such an organization insures the smooth evacuation of the sick and wounded to facilities that, from the standpoint of space available and professional care, are capable of handling the casualty influx. This unit does not have clinical professional responsibilities as does the triage team but acts on submitted diagnostic information to maintain a constantly revised "patient flow chart." It goes without saying that an adequate communications system is essential to the success of such a project.

There is nothing that can upset supporting medical facilities as thoroughly as poor sorting or classification of the sick and injured. By the same token intelligent triage performed by professionally competent personnel can not only save lives but also contribute to the optimal use of health personnel and facilities. A certain degree of honest difference of opinion exists as to the placing of various categories of medical personnel in the theater of combat. Nevertheless there has developed during and since World War II a majority opinion that a high level of professional competence must be located in close support of the line of combat. In an atomic disaster in this country one would not be faced with the problem of exposing professional personnel to continued enemy action, as is usually the case in combat situations; thus, this problem would not impose serious restrictions in the placing of health personnel at the site of disaster. This does not imply that the health professions are any more or less averse to exposure to danger but rather that, as is the case in war, this nation cannot jeopardize a critical personnel element without just cause.

Intelligent clinical judgment in the evaluation of the injured at forward echelons near the site of an atomic explosion will lessen the load imposed on the evacuation system by eliminating those with minor injuries and by the same token prevent an overcrowding of hospital facilities to the rear. Good professional judgment will make it possible to hasten the evacuation of those needing immediate care and sidetrack those with less urgent medical needs. The correct functioning of the triage team is contingent on the competence of its professional members. It is possible for a skilled orthopedist or surgeon, without even handling a scalpel, to save many lives by the application of sound clinical judgment in the triage of patients. The triage team must be familiar with the capacity, location, and competence of various supporting medical elements in order to function effectively.

The armed forces have learned from experience the value of small mobile surgical teams, both general and special, as supporting units to the forward echelons. The mobility of these units makes it possible to fit them into the evacuation chain where the flow of casualties demands special attention. One of the more recent specialty organizations that has developed in the evolution of this program is that of the vascular surgical team, and by virtue of the critical nature of this particular problem such a team holds a high priority in the evacuation chain. Certainly those responsible for the civil defense medical organization of professional personnel would do well to plan for mobile surgical teams to operate when and where the necessity arose. Actually all medical units should be organized primarily on the basis of personnel composition rather than geographic assignment, inasmuch as the latter is determined to a considerable extent by the site of the atomic explosion. The armed forces medical units under combat conditions are designated numerically as professional composites and not geographically, thus attesting to their mobile nature and ability to fall readily into the pattern of patient flow.

STANDARDIZATION OF PROCEDURE

Standardization in the application of therapeutic principles is quite distasteful to most of the medical profession, for this procedure is usually tainted with the aroma of mental regimentation and the shackling of individual scientific resources. Furthermore, there frequently develops a certain degree of retardation in the flow of medical progress when therapy is limited to the narrow confines of standard orders of procedure. Nevertheless there are certain conditions under which mortality and morbidity rates may be improved by the application of standard therapeutic principles. These conditions or modifying factors usually are existent in the medical problems precipitated by total war or a catastrophe of similar magnitude.

Whereas in civilian medicine the patient usually remains under the care of a single physician, the complications of war or physical catastrophe necessitate a series of patient evacuations with a multiplicity of health personnel and a variety of professional competence responsible for the treatment of the wounded. Therapy initiated at a forward echelon of medical installations is continued along the chain of evacuation with a series of professional men and women each contributing to the eventual recovery.

ery of the patient. This situation precludes too great a latitude in individual choice lest initial therapy narrow the limits of ultimate definitive care to the patient's detriment. For example, though different methods of soft tissue wound therapy are advocated by competent medical authorities, all do not lend themselves equally well to the care of the soldier, sailor, or airman injured in line of duty. Though an individual medical officer may be desirous of using his particular therapeutic measure, he must learn to conform lest the initial local treatment set the course of future definitive care in a pattern foreign to the personnel and facilities available in the chain of evacuation.

WOUNDS OF THE EXTREMITIES

Experience during World War II¹ and the more recent Korean conflict has shown that 70% of combat wounds involved the extremities and with the introduction of the armored vest this percentage is rising to an even higher figure. In an atomic attack actual trauma aside from burns will be inflicted in great part by secondary missiles or flying debris due to blast effect and certainly the extremities will receive a high proportion of these injuries. While the 4% mortality rate from this category of combat wounds is comparatively low, we must not lose sight of the serious long range handicap resulting from ineffectual limbs and therefore must bring into play every available therapeutic procedure that can contribute to the early rehabilitation of the patient. Though not necessarily applicable to civil defense, it is of interest to note that since the use of armored protection of the thorax and abdomen the over-all mortality rates have been lowered; however, in respect to the multiple low velocity fragment wounds of the extremities the morbidity rates are actually increasing. This somewhat paradoxical situation has developed because previously patients who sustained multiple serious wounds of the limbs also sustained similar injuries of the body trunk and did not survive, whereas under present protective elements the combat soldier lives but often with seriously mangled extremities. In the light of the importance of this particular subject we might in the first place give consideration to certain more or less standard emergency therapeutic procedures directed toward rehabilitating those with injuries of the extremities. Frequently the initial care will either save a limb or militate against its survival as a functional unit.

Hemorrhage.—Hemorrhage from a wound of the extremity is usually controlled by pressure dressings. In general the tourniquet should be used infrequently. When, however, the application of a tourniquet is indicated to prevent life-endangering hemorrhage, only rarely should it be removed before the wounded man has been hospitalized where facilities and personnel are available for operative control of the hemorrhage and for adequate blood replacement. The time-honored custom still accepted by many that the tourniquet should be removed every 30 to 60 minutes in order to minimize chances of gangrene of the extremity is a fallacious concept, for only an injury to the major vessel is likely to require a tourniquet and the incidence of gangrene in these, particularly in the lower extremity, is high regardless of the emergency measure applied. Furthermore, removal of the

tourniquet may facilitate another hemorrhage that in an already exsanguinated patient may very well prove lethal.

The tourniquet has enjoyed a rather fluctuating popularity, sometimes riding the very crest of acclaim and at other times settling low in the trough of discredit. To the medical novice in traumatic surgery nothing causes as much consternation as the sight of flowing blood, and there is usually present an irrepressible, almost involuntary, urge to staunch this leakage by whatever means available. Unfortunately under situations such as this the application of a tourniquet almost by historical precedence has become the standard procedure of choice. Without belaboring this criticism further, I cannot help but wonder about the number of limbs lost as a direct result of the injudicious application of this principle.

Fractures.—Management¹ of open or compound fracture of the extremities might well be divided into two basic phases; first, that applicable as the mission of the forward or combat zone and second, definitive care for which the base or general hospital must be responsible. The first phase mission is that of preventing infection and should be limited to thorough débridement or excision of the wound and adequate drainage, without closure, as well as immobilization, in order that pain and tissue damage may be minimized during transportation. Reduction should not be tried at this stage, and only gross malalignment is corrected at the time of splinting.

Devitalized tissues are excised in conjunction with liberal incisions of the skin and fascia, leaving in situ bone fragments with soft tissue attachments. These wounds are then left open unsutured and covered with petrolatum-impregnated fine mesh gauze. Tight packing of wounds is dangerous, but especially is this the case in wounds associated with fractures. Secondary closure of the wound uncomplicated by gross infection is usually performed four to six days after the initial débridement. This period may of necessity be prolonged in those soft tissue lacerations with or without underlying fractures where the evidence of gross infection remains obvious. One must remember that extension of the closure time beyond the six day period increases the fixation of the wound tissues and renders them less mobile and more difficult of apposition.

Methods of emergency splinting depend to a great extent on available facilities and individual preferences and, if adequate, do not necessarily adversely influence ultimate definitive therapy. The ideal transportation splint is the circular plaster cast, a method of equal value in the treatment of extensive soft tissue damage of the extremities without complicating fractures, when patients so afflicted must be transported with frequent handlings. Without exception every circular plaster cast, including the underlying sheet cotton padding, is split immediately after application.

The second phase in the care of the patient with an open fracture is the responsibility of the base or general hospital. Within a week after débridement, every plaster cast applied in the forward hospital is removed and the program of definitive care is initiated with the reduction and fixation of the fracture followed immediately or at an interval by a revision of the underlying wound. The

1. Hampton, O. P.: *Wounds of the Extremities in Military Surgery*, St. Louis, C. V. Mosby Company, 1951.

hanging cast or intramedullary nail affords a very acceptable mobile type of treatment for fractures of the humerus, whereas for fractures of the femoral shaft balanced suspension skeletal traction remains the most generally applicable method. However, intramedullary nailings of the broken femur even in the face of open wounds have yielded surprisingly good results in recent trials on our Korean casualties.

The intelligent primary management of the open wound of a joint is of *great significance in the final functional result* to be anticipated. Wide arthrotomy incision, through an area apart from the wound if indicated, with the excision of foreign bodies and devitalized articular cartilage and bone, followed by closure of the synovial membrane and capsule is the therapeutic method of choice. The remaining overlying soft tissues are closed secondarily several days later, as was discussed earlier. Immobilization of the joint is most important in the prevention of suppurative arthritis. The only joints left open for drainage are those hopelessly destroyed where one must anticipate a "frozen" functionless unit. In undébrided wounds of joints seen late and in established suppurative arthritis, the surgical procedure of choice remains the same, namely, intra-articular débridement and lavage, with closure of the synovial membrane and capsule. Needless to say the antibiotics play an important role in this therapeutic program.

There is no place for primary suture in the standard therapy of wounds of major peripheral nerve trunks, inasmuch as the definitive repair of severed nerves is not to be accomplished until the wound has healed and shown no evidence of infection for a period of at least three weeks. During the process of débridement nerve ends are neither to be tagged nor approximated by suture but rather are permitted to retract into protective soft tissue. Careful anatomical description of the findings at the original exploration are of inestimable value to the surgeon in the rear echelon of medical evacuation.

Wounds of major vessels of the extremities have always presented a serious problem to the military surgeon. Recent experiences in Korea are demonstrating the value of competent front line vascular surgical teams who with the use of both autogenous and homologous grafts have saved many limbs. Owing to the urgency of early and skilled care, such vascular wounds must have a high therapeutic priority. The accumulating rather favorable statistics may well lead to an acceptance of this apparent solution to an age-old problem as a standard approach to the care of wounds of major peripheral elements of the vascular system.

Amputation.—Early in World War II American forces accepted simple open circular amputation through the most distal level of viable tissue as the standard procedure of choice in the combat zone. The definitive plastic revision of the stump or reamputation at a more functional level was the responsibility of the rear fixed hospital. Once this method of standardized therapy became a routine order of procedure, many limbs and lives were saved. An integral, essential part of this treatment was the utilization of immediate and continuous skin traction plus the optimal splinting of the joint just proximal to the level of amputation.

BURNS

Among the many new problems that modern warfare has created for the military surgeon is that of large numbers of thermal burns, for combat techniques now include a great variety of situations that expose the participant directly to the actual flame. This difficulty is further compounded by the possibility of mass burn casualties over a relatively brief or almost instantaneous span of time. To appreciate the multiplicity of contributing factors, one has but to enumerate such relatively new instruments of war as the flame-thrower, napalm bomb, and atomic explosion, not to mention the constant dangers of such accidents as airplane crashes and fires aboard ship. Experiences from Hiroshima and Nagasaki have demonstrated the high incidence of thermal burns as a result of direct atomic flash exposure and of secondary fires.

The therapeutic challenge of burns has plagued military surgeons for many centuries, and it is only in very recent times that the seriously burned could be offered any hope of freedom from permanent disfigurement or of life itself. The great campaign surgeon Ambroise Paré writing in his diary gives us some insight into the hopelessness of the severely burned soldier in the 16th century. After describing the capture of a city he continues, "I entered a stable thinking to lodge my horse and that of my man, where I found four dead soldiers and three who were propped against the wall, their faces wholly disfigured, and they neither saw, nor heard, nor spoke, and their clothes yet flaming from the gunpowder which had burnt them. Beholding them with pity there came an old soldier who asked me if there was any means of curing them. I told him no. At once he approached them and cut their throats gently and without anger. Seeing this great cruelty, I said to him that he was a bad man. He answered me that he prayed God that when he should be in such a case, he might find someone who would do the same for him, to the end that he might not languish miserably."

The early management of the severely burned patient involves two major therapeutic phases, namely, the prevention and treatment of burn shock and the prevention of infection. The first phase must solve intelligently the problem of fluid and electrolyte balance, whereas the second phase, both by the use of aseptic techniques in handling of the open burn wound and by the maintenance of an adequate antibiotic blood level, must neutralize the hazards of infection. The later therapeutic procedures include skin grafting and other definitive plastic measures aimed at the total rehabilitation of the patient. Time does not permit an evaluation of the entire care of the burned patient. Inasmuch as the subject is standardization of therapeutic procedures, it might be well to direct attention to those facets that lend themselves to this approach and in which the ultimate definitive care might be jeopardized by inadequate or improper initial therapy.

Numerous formulas have been developed for the standardization of the approach to electrolyte and other blood-element imbalance precipitated by burn shock, most of which are calculated in relation to the percentage of total body surface burned. A simplified rule of nines

for an approximate estimation of the body area involved states that each of the upper extremities comprise 9% of body surface, the head and neck 9%, each lower extremity 18%, and the anterior and posterior aspects of the combined thoracoabdominal trunk each 18%. Any patient sustaining more than 20% surface burn is likely to go into some degree of shock and arbitrarily a 40% or more burn is considered as extensive and severe.

Evans² has developed a rather typical standard formula that when applied to a man weighing 70 kg. with a 35% burn calculates the first 24 hour fluid requirement as a total of 6,900 cc. broken down as follows: plasma, plasma expanders, or whole blood (70 by 35 by 1 cc.) 2,450 cc.; electrolyte solutions as isotonic sodium chloride (70 by 35 by 1 cc.) 2,450 cc.; and 5% glucose in water 2,000 cc. Half this amount of plasma and/or whole blood and electrolyte and the same amount (2,000 cc.) of 5% glucose in water is given the second 24 hours. The experience of the traumatic shock research team in Korea has shown that, when the use of plasma expanders is necessary, best results have been obtained by the administration of one unit of dextran with each unit of whole blood. A word of caution is indicated in the administration of large amounts of chloride in extensive burns, and rarely should more than 4,000 cc. of isotonic sodium chloride solution be given in the first 24 hours. The electrolyte balance of the burned patient can usually be stabilized after the first 48 hours by adequate amounts of fluid and food by mouth. The utilization of such a formula in no wise relieves the attending physician from the responsibilities of the application of good clinical judgment but does afford a degree of standardization that in the face of mass casualties and multiple evacuations more accurately regulates the therapeutic program.

The treatment of the burn wound itself commences with the prevention of further contamination. After the shock therapy is under way and clinical evaluation of the patient indicates that additional insults to the body economy will not precipitate further complications, under sterile aseptic technique the burned areas are gently but thoroughly cleansed and débrided. There are two major therapeutic measures advocated for the care of burn wounds, each having the support of highly qualified scientists. One is known as the occlusive pressure dressing method described by Allen and Koch³ and the other is the open or exposure treatment supported by Pulaski and his co-workers.⁴ Most forms of burn therapy are modifications of these basic concepts.

The closed treatment involves the application of sterile fine mesh gauze, either dry or petrolatum-impregnated, against the raw surface of the wound, over which is added mechanic's waste or absorbent cotton to afford pressure or absorb exudate. A final outer layer of dressing is applied so as to exert mild pressure to the underlying wound. Advocates of the closed method of treatment argue that after cleansing of the wound, further contamination is minimized, a certain degree of optimal splinting is afforded, and that patients are transportable.

The open or exposure method of therapy lends itself best to partial thickness burns involving only one side of the body and to burns of the head and buttocks. The fact that cooperation of the patient is essential limits to

some degree the application of this principle. One cannot help but be impressed by the role the exposure method of burn therapy may of necessity play in the event of large scale atomic attack where a limited supply of physicians may be called upon to handle thousands of severely burned patients. The many advantages that would accrue in the conservation of health personnel and time requirements under such a standard therapeutic procedure should not be underestimated.

ABDOMINAL WOUNDS

Though one cannot extrapolate combat statistics and apply them directly to expected atomic blast injuries, nevertheless certain valuable information can be gained from this experience.⁵ Approximately 4% of all those wounded in action sustain injury to the abdomen, with an over-all mortality rate in these cases of 35%; furthermore 85% of abdominal wounds penetrate the peritoneal cavity. The two major factors complicating wounds in this region are those of infection and hemorrhage, the former in the great majority of instances being secondary to perforation of the intestinal tract. Statistics show that, of all combat abdominal wounds, 20% will be penetration of the small intestine and some 10% of the large intestine. In instances of colon injury the mortality rate remains around 50%. It is standard procedure to explore every penetrating wound of the abdomen that cannot be proved to have missed the peritoneum.

The adoption of certain standard surgical measures in the face of perforations of the large intestine are essential to the proper management of this most serious category of intestinal wounds. To save life, the most important facet of therapy is that of short-circuiting the large intestine contents in order that the injured segment not be subjected to the trauma of distension and peristaltic action. In wounds involving less than half of the bowel circumference, one may perform either a simple loop colostomy using the injured loop or close the perforation and create a proximal colostomy. Where the wound is greater than half the circumference of the colon, the damaged portion is resected and a double barrel Mikulicz colostomy performed. Penetrating rectal and anal wounds, however innocuous they might appear, necessitate a laparotomy; should a perforation be discovered above the sphincter, a sigmoid colostomy is indicated. If at all possible, the wound area and operative incision are to be avoided as colostomy sites.

Injury to the liver is seen in 30% of combat abdominal wounds and carries with it a mortality rate of 18% if this is the sole viscus involved. Various methods of repair utilizing techniques of mattress sutures and absorbable packing are equally efficient; however, the damaged area is always drained. Unless this standard of procedure is studiously observed, a variety of complications secondary to bile and blood seepage are bound to occur.

2. Evans, E. I.: *The Early Management of the Severely Burned Patient*, Surg., Gynec. & Obst. 94: 273, 1952.

3. Allen, H. S., and Koch, S. L.: *The Treatment of Patients with Severe Burns*, Surg., Gynec. & Obst. 74: 914, 1942.

4. Pulaski, E. J., and others: *Exposure (Open) Treatment of Burns*, U. S. Armed Forces M. J. 2: 769, 1951.

5. *Surgery of Trauma*, Bowers, W. F., editor, Philadelphia, J. B. Lippincott Company, 1953. Beebe, G. W., and De Bakey, M. E.: *Battle Casualties: Incidence, Mortality, and Logistic Considerations*, Springfield, Ill., Charles C Thomas, Publisher, 1952.

The spleen is injured in 7% of all combat abdominal wounds, though it is involved alone in only approximately 2% of cases. In the latter situation there is a mortality rate of 13%. The procedure of choice in all but superficial abrasions is immediate splenectomy, for temporizing may lead to delayed and fatal hemorrhage from a subcapsular hematoma.

Some 10% of those wounded in action sustain injuries of the chest. These combat statistics are expected to change as more experience is gained in the utilization of the armored vest. Thoracic wounds present a twofold problem, the first being that of a disturbed cardiorespiratory physiology and the second that of infection. The immediate and correct handling of chest wounds frequently spells the difference between life and death especially, as this pertains to the correction of respiratory imbalance. Open pneumothorax with the oft-described "sucking wound" necessitates prompt closure with a gauze compress or pack held in place by adhesive plaster. Suturing of such a wound preferably is delegated to a surgical team by whom adequate débridement and accurate closure can be accomplished.

Pressure pneumothorax is another complication of chest wounds requiring early attention. The relief of this situation is simple and effective if applied promptly and consists of the insertion into the pleural cavity of a catheter with a water seal valve or a needle with a rubber flutter valve. Repeated aspirations of the pleural cavity by a needle removing air and blood will aid in the maintenance of proper respiratory balance.

Supplementing the procedures directed at the specific situations described above are equally important therapeutic measures such as frequent tracheobronchial aspirations removing blood and mucous collections, administration of oxygen, transfusions when indicated, and the routine performance of tracheotomies in the unconscious patient with serious chest injury. Standardization of this early care has resulted in the saving of many lives and the improvement of morbidity rates.

Definitive care for the patient with a chest wound is carried out by competent thoracic teams not the least important member of which is a well-trained and efficient anesthesiologist. Blood clot and congealed purulent exudate that no longer yield to the aspirating needle will necessitate thoracotomy and decortication of the lung to permit satisfactory pulmonary expansion.

MAINTENANCE OF RECORDS

The absolute necessity for the maintenance of brief and yet accurate medical emergency records on all casualties is of paramount importance. To meet the standards of practicality such a system requires advance planning, simplicity in accomplishment, and the indoctrination of physicians as to the value of this procedure to the eventual welfare of the patient. Anyone who has functioned as a medical officer in the chain of patient evacuation will attest to the sense of therapeutic frustration developed by inadequate recordings of emergency care. In the event of radiation exposure, there are additional data that only the person administering initial care will be able to record with any degree of accuracy. Among these is the geographic relationship to ground zero at the time of exposure.

SUMMARY

The purpose of this paper is to present certain qualifying factors that modify the application of medicine to combat or catastrophic situations and to point out the possible benefits that will accrue as civilian physicians share the experiences of the armed forces in medical organization applicable to the care of mass casualties.

Mission Dr., Solvang, Calif.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., Secretary.

Tetraethylammonium Chloride.—Etamon Chloride (Parke, Davis).— $C_2H_5)_4N \cdot Cl$.—M.W. 165.71.—Tetraethylammonium chloride is made in the form of a 50% solution in water. From this solution the dosage forms are prepared. The structural formula of tetraethylammonium chloride may be represented as follows:



Actions and Uses.—Tetraethylammonium chloride is a quaternary ammonium compound belonging to a class of drugs that, like nicotine and curare, act as generalized ganglionic blocking agents. The drug partially blocks transmission of motor nerve impulses through the ganglia of both the sympathetic and parasympathetic divisions of the autonomic nervous system. Its action is not adrenolytic and is interrupted by neostigmine. The blocking of sympathetic stimuli associated with vasospasm usually results in an increased blood supply to the affected region, accompanied by reduction in arterial pressure due to vasodilation. The simultaneous interference with the transmission of parasympathetic impulses produces loss of ocular accommodation, cessation or decrease of motility of the gastrointestinal tract, and alteration of urinary bladder function.

Tetraethylammonium chloride is of limited clinical usefulness as a therapeutic and diagnostic agent in the management of peripheral vascular diseases and other conditions involving vascular dysfunction. It has been employed successfully in the therapy of thromboangiitis obliterans (Buerger's disease), arteriosclerosis obliterans, various causalgias including reflex dystrophy, herpes zoster, thrombophlebitis, Raynaud's disease, acrocyanosis, trenchfoot, and immersion foot. It may be employed diagnostically in acrovacular conditions to estimate the contribution of sympathetic stimuli in the maintenance of vasospasm.

Tetraethylammonium chloride promptly lowers blood pressure in both normal and hypertensive patients. Peripheral circulatory collapse has followed its use. Patients occasionally also experience dyspnea with hyperventilation, weakness, fatigue, lightheadedness, slowing of speech, dulling of the sensorium, difficulty in muscle movement that is not associated with impairment of the deep reflexes, dryness of the mouth, and loss of ocular accommodation. The drug should be employed with caution in patients with severe hypertension, particularly in the presence of poor renal function or high diastolic blood pressure. Repeated administration should be avoided in the presence of impaired renal excretion. Tetraethylammonium chloride is not suitable for the treatment of hypertension because its hypotensive effect is not sustained. It

should not be used in patients with recent coronary thrombosis and should be used with caution in all elderly patients and those with arteriosclerosis because they often experience unusual decrease in blood pressure with diminution in blood flow through the extremities.

Dosage.—Tetraethylammonium chloride is administered by intravenous or intramuscular injection. Intramuscular injection produces local tenderness and burning. Subcutaneous injection produces considerable local irritation and oral administration is ineffective.

The intravenous dose is 2 to 5 cc. of a solution representing 0.2 to 0.5 gm. (not to exceed 7 mg. per kilogram of body weight). Frequency of injection depends on duration of relief of symptoms. The effectiveness of the dose can be judged properly only on the basis of three or more injections. Injections may be given once or twice daily for several weeks in exceptional cases. The effects of the drug appear almost immediately after intravenous administration and postural hypotension lasts from several minutes to one hour. Patients should be kept recumbent for at least one hour after intravenous injection.

The intramuscular dose is 10 to 12 cc. (5 to 6 cc. in each buttock) of the same concentration as that used intravenously, representing 1 to 1.2 gm. (not to exceed 20 mg. per kilogram of body weight). This maintains an effective sympathetic block for 6 to 36 hours in hospitalized patients. Continuation of the autonomic blockade for longer than 36 hours usually causes considerable distress. Addition of 1 cc. of 2% procaine hydrochloride solution to the dose of tetraethylammonium chloride decreases the discomfort caused by intramuscular injection.

Peripheral circulatory collapse should be treated by artificial respiration and/or injection of epinephrine hydrochloride solution 1:1,000. Intravenous administration of 0.5 to 1 mg. of neostigmine methylsulfate in solution antagonizes the blocking action of tetraethylammonium chloride and promotes rapid recovery from the postural hypotension.

Tests and Standards.—

The following tests and standards apply to the 50% aqueous solution of tetraethylammonium chloride.

Physical Properties: Tetraethylammonium chloride, isolated by evaporating the 50% solution in a vacuum, is an extremely hygroscopic, odorless, white solid. It is very soluble in water and in alcohol, freely soluble in chloroform, and practically insoluble in benzene and in ether. The pH of the 50% solution is 5.8 to 6.5.

Identity Tests: To 1 ml. of the 50% solution of tetraethylammonium chloride add 10 ml. of water, 0.5 ml. of diluted nitric acid, and 1 ml. of silver nitrate T.S.: a white precipitate forms that dissolves in 10 ml. of ammonium hydroxide T.S. (presence of chloride).

Shake about 1 gm. of ammonium reineckate with 25 ml. of water. Filter the mixture and add 5 ml. of the clear solution to 5 ml. of the 50% solution of tetraethylammonium chloride: a pink precipitate forms.

To 3 ml. of the 50% solution of tetraethylammonium chloride add 10 ml. of a saturated alcoholic solution of picric acid (1 gm. in 12 ml.): a fine, yellow, crystalline precipitate forms. Filter the mixture and wash the precipitate with 3 ml. of isopropyl alcohol and dry it at 105° for 4 hours: the picrate obtained melts (Caution! May be explosive. Use safety glass shield) with decomposition at 257-260°.

Purity Tests: The amount of triethylamine hydrochloride found in the assay is not more than 0.5%.

With water dilute to 50 ml. exactly 1 ml. of the 50% solution of tetraethylammonium chloride and on this solution run a U. S. P. heavy metals test: the amount of heavy metals does not exceed 20 ppm.

Evaporate in a platinum crucible 2 ml., accurately measured, of the 50% solution of tetraethylammonium chloride. Carefully ignite, cool, and weigh: the residue does not exceed 0.1%.

Assay: (Tetraethylammonium Chloride) Accurately measure into a 200 ml. volumetric flask 1 ml. of the 50% solution of tetraethylammonium chloride, and add 50 ml. of water and exactly 50 ml. of 0.1 N silver nitrate. Acidify the mixture with 3 ml. of nitric acid, agitate it until the precipitate coagulates and the supernatant liquid is clear, dilute to the mark with water, and mix. Filter the mixture through dry filter paper. Discard the first 20 ml. of filtrate and titrate exactly 100 ml. of the subsequent filtrate with 0.1 N potassium thiocyanate, using 2 ml. of ferric ammonium sulfate T.S. as an indicator. Each milliliter of 0.1 N silver nitrate consumed is equivalent to 0.003546 gm. of chloride and to 0.01657 gm. of tetraethylammonium chloride plus triethylamine expressed as tetraethylammonium chloride (total amines).

Accurately measure into a 400 ml. beaker 10 ml. of the 50% solution of tetraethylammonium chloride and dilute it with 190 ml. of alcohol. Run a potentiometric titration with 0.1 N sodium hydroxide, using a glass electrode. Run a blank titration on 190 ml. of alcohol. Each milliliter of 0.1 N sodium hydroxide consumed is equivalent to 0.01376 gm. of triethylamine hydrochloride that in turn is equivalent to 0.01656 gm. of tetraethylammonium chloride.

Subtract the amount of tetraethylammonium chloride equivalent to the triethylamine from the value for total amines to get the amount of

tetraethylammonium chloride itself. The amount of tetraethylammonium chloride is not less than 47.5 nor more than 52.5%, equivalent to not less than 95.0 or more than 105.0% of the labeled amount of tetraethylammonium chloride.

Dosage Forms of Tetraethylammonium Chloride

SOLUTIONS. Physical Properties: The pH of the 10% solution is 5.8 to 6.5.

Identity Tests: The solution responds to the reineckate and picrate identity tests for the 50% solution in the monograph for tetraethylammonium chloride.

Assay: (Tetraethylammonium Chloride) Transfer to a 200 ml. volumetric flask a volume of solution, accurately measured, equivalent to about 0.5 gm. of tetraethylammonium chloride. Add 50 ml. of water and exactly 50 ml. of 0.1 N silver nitrate. Proceed as directed in the assay for the 50% solution in the monograph for tetraethylammonium chloride starting with, "Acidify the mixture with 3 ml. of nitric acid, agitate it until the precipitate coagulates . . ." Each milliliter of 0.1 N silver nitrate consumed is equivalent to 0.01657 gm. of tetraethylammonium chloride (total amines).

Transfer to a 400 ml. beaker a volume of solution, accurately measured, equivalent to about 5 gm. of tetraethylammonium chloride and dilute it with 190 ml. of alcohol. Run a potentiometric titration with 0.1 N sodium hydroxide, using a glass electrode. Run a blank titration on 190 ml. of alcohol. Each milliliter of 0.1 N sodium hydroxide consumed is equivalent to 0.01376 gm. of triethylamine hydrochloride, which in turn is equivalent to 0.01656 gm. of tetraethylammonium chloride.

Subtract the amount of tetraethylammonium chloride equivalent to the triethylamine hydrochloride from the value for total amines to get the amount of tetraethylammonium chloride itself. The amount of tetraethylammonium chloride is not less than 95.0 or more than 105.0% of the labeled amount.

Parke, Davis & Company, Detroit.

Solution Etamon Chloride 10%: 20 cc. Steri-Vials. A solution containing 0.1 gm. of tetraethylammonium chloride in each cubic centimeter. Preserved with 0.005% benzethonium chloride. U. S. trademark 432,476.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional product has been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., Secretary.

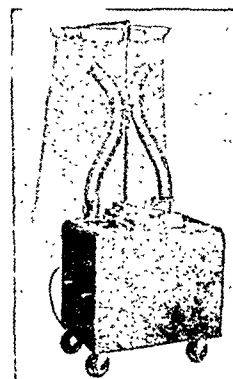
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The models differ in the motor-compressor units. Model RV-2 has a one-fifth horsepower compressor, and its motor draws 650 watts. Model RV-3 has a one-third horsepower compressor, and its motor draws 860 watts. Both units require a source of 60 cycle alternating current at 115 volts. The shipping weights for Models RV-2 and RV-3 are 107 and 113 kg. (235 and 250 lb.), respectively.

Evidence indicating sound construction and satisfactory performance was obtained from sources acceptable to the Council.



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THE HAND AND CARDIOVASCULAR DISEASE

Despite widespread and sometimes unnecessary use of numerous laboratory tests in day-by-day clinical practice, diagnostic methods that require no special apparatus and that depend only on simple observation can play an effective role in obtaining clinical information about patients. In this connection, the human hand is a unique organ from which an extraordinary amount of clinical information may be derived. According to Silverman and Littman,¹ examination of the hand will often disclose interesting and occasionally revealing information about the cardiovascular status of patients. In a general way, the size of the hand is proportional to the rest of the body, and a rough approximation of the cardiac silhouette is obtained by examination of the size of the fist.² Under normal conditions the outline of the fist and the orthodiagraphic silhouette coincide, a small fist usually indicating a small heart.

Excessive palmar sweating constitutes one of the more striking findings in neurocirculatory asthenia. Sweating of the palms reflects emotional activities; it is increased during tension and excitement, although some degree of palmar sweating does occur in normal persons who are in a state of anticipation. A tremor of wide amplitude may also be detected in patients afflicted with neurocirculatory asthenia. The combination of excessive palmar sweating and a pronounced tremor of the outstretched fingers is a frequent finding in neurocirculatory asthenia and almost never takes place in normal persons.

Cyanosis and clubbing of the fingers have long been associated with congenital heart disease. Clubbing of the

fingers does not appear at birth and very rarely before the age of 2 years; however, when congenital heart disease is suspected, alert clinicians search for associated congenital anomalies. Polydactyly and syndactyly, for example, may be associated with congenital heart disease. Moreover, arachnodactyly, which is characterized by abnormally long, slender fingers, is a hereditary disorder in which there is a high incidence of cardiovascular anomalies, including septal defects, vascular hypoplasia, and medionecrosis of the aorta.

Study of the hand is especially rewarding in the case of subacute bacterial endocarditis. Diagnosis of this disease is sometimes established initially by information supplied solely by the hand. According to Libman,³ a diagnostic sign pathognomonic of subacute bacterial endocarditis is supplied by the so-called Osler node, which consists of a small, tender red nodule located in the pads of the finger or in the thenar or hypothenar eminences. Pallor is a more or less constant finding in subacute bacterial endocarditis; the degree of pallor can be determined by observing the color of the palms. Wintrobe⁴ asserts that the palmar site is more reliable for judging pallor than mucous membranes or conjunctivas.

A clue to the existence of endocrine disturbances is also supplied by the hand. In hyperthyroidism, the hands are tremulous, flushed warm and moist, with the skin smooth and satiny; in hypothyroidism, the hands are dry, rough, and cold. The hand of a cretin is characteristically underdeveloped, while the hand of an acromegalic person is large, broad, and usually coarse and swollen.

The shoulder-hand syndrome is a disabling complication of myocardial infarction, which is characterized initially by a great deal of pain, stiffness, and limitation of motion of the shoulder joint and girdle, and is followed by involvement of the hands and fingers. Two signs of the hand suggestive of disturbance in liver function are thought to occur: erythema of the palms and spider angiomas or pulsating vascular nevi. Raynaud's syndrome primarily involves the fingers, while in advanced congestive heart failure the hands are invariably cold, the veins on the dorsum engorged, and the finger-nail-bed cyanotic.

Finally, it should be pointed out that the hands are admirably suited for study of the dynamics of peripheral circulation.⁵ As a matter of practical importance, the color and temperature of the skin of the hands sometimes yield more information of impending shock than either the pulse or the blood pressure. Indeed, a warm, pale hand abruptly changing in appearance during illness to a cold, deeply colored, cyanotic state supplies dramatic evidence of peripheral circulatory failure.

1. Silverman, J. J., and Littman, D. S.: *The Cardiologist Looks at the Hand*, New England J. Med. 249: 839, 1953.

2. Roesler, H.: *Clinical Roentgenology of the Cardiovascular System: Anatomy, Physiology, Pathology, Experiments and Clinical Applications*, Springfield, Ill., Charles C Thomas, Publisher, 1937.

3. Libman, E., cited by Friedberg, C. K.: *Diseases of the Heart*, Philadelphia, W. B. Saunders Company, 1949.

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5. DiPalma, J. R.: *Circulation in Skin in Shock Syndrome: Comparison of Simple Prognostic Features of Clinical Value*, J. A. M. A. 123: 684 (Nov. 13) 1943.

CHILDREN AS SURGICAL PATIENTS

The reactions of children who become surgical patients in a hospital for the first time vary considerably. Older children, especially those over 5 years of age, seem to forget the stay in a hospital quickly, while those under 5 years are more likely to show transient behavior changes—fear of the dark, fear of being left alone, and such regressive behavior phenomena as bed wetting, wanting to be fed, and fear of doctors and nurses. Disobedience, temper tantrums, increasing dependency, and spiteful, defiant behavior are more likely to occur in older children.

According to Mac Keith,¹ the three principal anxieties that concern children who are admitted to a hospital for the first time deal with separation from the home, the nature of the anesthetic, and the operation itself. While older children usually regard separation from a home environment to be temporary, younger children occasionally react in a highly charged manner. Very young children sometimes feel so lonely and deserted that they do not appear to pay too much attention to the operation itself; this is true of children who remain in a hospital environment for a period longer than was originally anticipated. In some instances, children develop fantastic notions about operative and anesthetic procedures and display unrestrained consternation regarding what will be done to them while they are under the influence of an anesthetic agent.

In the case of tonsillectomy, Coleman² proposes that a child who is to be subjected to this procedure be given a forthright explanation of the reasons for the operation; that a recognizable word-picture be drawn of the hospital, the operation, the nurse, and doctors; that an explanation be made, pointing out that the purpose of anesthesia is to relieve the child of pain during the operation; and that the parents be urged to reassure the child and display affection for him during the post-operative period. Before the operation, a very young child who brings along a familiar toy, a pair of slippers, or a pillow on admission to the hospital creates a tangible tie with his home. The admittance of a child to a hospital some 24 hours before an operation will often enable him to overcome a sense of initial panic and thereby afford him an opportunity to establish amicable relations with his fellow patients and with nurses and doctors.

Parents can play an extremely important role in preparing the child psychologically and emotionally before admission to the hospital. Actually, it is important that all three—mother, father, and child—know in a general way what will ensue in the hospital. The parents should possess sufficient information in order to answer those questions the child is certain to ask. Parents, and mothers particularly, need guidance in preparing a child for a hospital experience. A gigantic step forward in terms of parental education could be taken if the medical profession together with hospitals would routinely issue instructional leaflets to parents of children who are about to become surgical patients.

NOCTURNAL ENURESIS

Enuresis is a major problem, involving about 16% of the population between the ages 3 to 15 years. A solution is necessary for the social adjustment of the child, and those few persons in whom enuresis persists into adult life are truly handicapped. Anatomic or physiological abnormalities are present in only about 3% of those affected,¹ and since these can be treated by specific measures they do not enter into the present discussion. In any child, if bladder control is not accomplished by the time he has reached the age of 3½ years, training is likely to be difficult.

The causes proposed for nocturnal enuresis are varied and range from laziness to psychic disturbances. Holt and Holland state that bedwetting is purely a habit often associated with other habits that go with an unstable personality. Grulee and Eley say that a strong familial tendency is commonly observed in these patients and that they maintain an irritable bladder throughout life even though they are no longer enuritic. Turton and Spear² obtained electroencephalograms on 100 enuritic children and found 22 with epileptiform tracings, 28 with immature tracings, and 23 whose tracings were on the borderline of abnormality. They concluded that many enuritics who do not respond to treatment have an unsuspected physical basis for their disorder and that the electroencephalogram is of aid in the diagnosis.

Because the desire to urinate depends on the pressure within the bladder rather than on the amount of fluid O'Malley and Owens³ used methantheline (Banthine) to inhibit the local reflex vesical spasm and found that with this treatment the bladder could accommodate more fluid without an increase in intravesicular pressure. A noteworthy concomitant of this treatment was the psychological relief and increased self-confidence of the child. Some of their patients required a second course of the drug, but none required a third course.

Geppert,¹ on the other hand, has had successful results in 91% of a series of 42 children treated by conditioned response after restriction of fluid intake and rewards had failed. The method is cumbersome in that it requires special equipment and its success depends on careful observation of the details of the technique and close supervision by the parents. The patient sleeps on a moisture sensitive bed pad that is connected to an electric alarm. A moist spot the size of a silver dollar will set off the alarm. The child must be thoroughly awakened and must empty his bladder. The pad must then be replaced with a dry one and the alarm reset. The author found that sporadic bedwetters were the slowest to respond and that their progress was hardest to gauge. The chief cause of failures was poor parental cooperation.

1. Mac Keith, R.: *Children in Hospital: Preparation for Operation*, *Lancet* 2: 843 (Oct. 24) 1953.

2. Coleman, L. D.: *Psychosomatic Aspects of Diseases of the Ear, Nose and Throat*, *Laryngoscope* 59: 709 (July) 1949.

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3. O'Malley, J. F., and Owens, R. H.: *Banthine Therapy for Enuresis*, *J. Missouri M. A.* 50: 188-189 (March) 1953.

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THE HAND AND CARDIOVASCULAR DISEASE

Despite widespread and sometimes unnecessary use of numerous laboratory tests in day-by-day clinical practice, diagnostic methods that require no special apparatus and that depend only on simple observation can play an effective role in obtaining clinical information about patients. In this connection, the human hand is a unique organ from which an extraordinary amount of clinical information may be derived. According to Silverman and Littman,¹ examination of the hand will often disclose interesting and occasionally revealing information about the cardiovascular status of patients. In a general way, the size of the hand is proportional to the rest of the body, and a rough approximation of the cardiac silhouette is obtained by examination of the size of the fist.² Under normal conditions the outline of the fist and the orthodiagraphic silhouette coincide, a small fist usually indicating a small heart.

Excessive palmar sweating constitutes one of the more striking findings in neurocirculatory asthenia. Sweating of the palms reflects emotional activities; it is increased during tension and excitement, although some degree of palmar sweating does occur in normal persons who are in a state of anticipation. A tremor of wide amplitude may also be detected in patients afflicted with neurocirculatory asthenia. The combination of excessive palmar sweating and a pronounced tremor of the outstretched fingers is a frequent finding in neurocirculatory asthenia and almost never takes place in normal persons.

Cyanosis and clubbing of the fingers have long been associated with congenital heart disease. Clubbing of the

fingers does not appear at birth and very rarely before the age of 2 years; however, when congenital heart disease is suspected, alert clinicians search for associated congenital anomalies. Polydactyly and syndactyly, for example, may be associated with congenital heart disease. Moreover, arachnodactyly, which is characterized by abnormally long, slender fingers, is a hereditary disorder in which there is a high incidence of cardiovascular anomalies, including septal defects, vascular hypoplasia, and medionecrosis of the aorta.

Study of the hand is especially rewarding in the case of subacute bacterial endocarditis. Diagnosis of this disease is sometimes established initially by information supplied solely by the hand. According to Libman,³ a diagnostic sign pathognomonic of subacute bacterial endocarditis is supplied by the so-called Osler node, which consists of a small, tender red nodule located in the pads of the finger or in the thenar or hypothenar eminences. Pallor is a more or less constant finding in subacute bacterial endocarditis; the degree of pallor can be determined by observing the color of the palms. Wintrobe⁴ asserts that the palmar site is more reliable for judging pallor than mucous membranes or conjunctivas.

A clue to the existence of endocrine disturbances is also supplied by the hand. In hyperthyroidism, the hands are tremulous, flushed warm and moist, with the skin smooth and satiny; in hypothyroidism, the hands are dry, rough, and cold. The hand of a cretin is characteristically underdeveloped, while the hand of an acromegalic person is large, broad, and usually coarse and swollen.

The shoulder-hand syndrome is a disabling complication of myocardial infarction, which is characterized initially by a great deal of pain, stiffness, and limitation of motion of the shoulder joint and girdle, and is followed by involvement of the hands and fingers. Two signs of the hand suggestive of disturbance in liver function are thought to occur: erythema of the palms and spider angiomas or pulsating vascular nevi. Raynaud's syndrome primarily involves the fingers, while in advanced congestive heart failure the hands are invariably cold, the veins on the dorsum engorged, and the finger-nail-bed cyanotic.

Finally, it should be pointed out that the hands are admirably suited for study of the dynamics of peripheral circulation.⁵ As a matter of practical importance, the color and temperature of the skin of the hands sometimes yield more information of impending shock than either the pulse or the blood pressure. Indeed, a warm, pale hand abruptly changing in appearance during illness to a cold, deeply colored, cyanotic state supplies dramatic evidence of peripheral circulatory failure.

1. Silverman, J. J., and Littman, D. S.: *The Cardiologist Looks at the Hand*, New England J. Med. **249**: 639, 1953.

2. Roesler, H.: *Clinical Roentgenology of the Cardiovascular System: Anatomy, Physiology, Pathology, Experiments and Clinical Applications*, Springfield, Ill., Charles C Thomas, Publisher, 1937.

3. Libman, E., cited by Friedberg, C. K.: *Diseases of the Heart*, Philadelphia, W. B. Saunders Company, 1949.

4. Wintrobe, M. M.: *Clinical Hematology*, ed. 3, Philadelphia, Lea & Febiger, 1951.

5. DiPalma, J. R.: Circulation in Skin in Shock Syndrome: Comparison of Simple Prognostic Features of Clinical Value, J. A. M. A. **123**: 684 (Nov. 13) 1943.

CHILDREN AS SURGICAL PATIENTS

The reactions of children who become surgical patients in a hospital for the first time vary considerably. Older children, especially those over 5 years of age, seem to forget the stay in a hospital quickly, while those under 5 years are more likely to show transient behavior changes—fear of the dark, fear of being left alone, and such regressive behavior phenomena as bed wetting, wanting to be fed, and fear of doctors and nurses. Disobedience, temper tantrums, increasing dependency, and spiteful, defiant behavior are more likely to occur in older children.

According to Mac Keith,¹ the three principal anxieties that concern children who are admitted to a hospital for the first time deal with separation from the home, the nature of the anesthetic, and the operation itself. While older children usually regard separation from a home environment to be temporary, younger children occasionally react in a highly charged manner. Very young children sometimes feel so lonely and deserted that they do not appear to pay too much attention to the operation itself; this is true of children who remain in a hospital environment for a period longer than was originally anticipated. In some instances, children develop fantastic notions about operative and anesthetic procedures and display unrestrained consternation regarding what will be done to them while they are under the influence of an anesthetic agent.

In the case of tonsillectomy, Coleman² proposes that a child who is to be subjected to this procedure be given a forthright explanation of the reasons for the operation; that a recognizable word-picture be drawn of the hospital, the operation, the nurse, and doctors; that an explanation be made, pointing out that the purpose of anesthesia is to relieve the child of pain during the operation; and that the parents be urged to reassure the child and display affection for him during the post-operative period. Before the operation, a very young child who brings along a familiar toy, a pair of slippers, or a pillow on admission to the hospital creates a tangible tie with his home. The admittance of a child to a hospital some 24 hours before an operation will often enable him to overcome a sense of initial panic and thereby afford him an opportunity to establish amicable relations with his fellow patients and with nurses and doctors.

Parents can play an extremely important role in preparing the child psychologically and emotionally before admission to the hospital. Actually, it is important that all three—mother, father, and child—know in a general way what will ensue in the hospital. The parents should possess sufficient information in order to answer those questions the child is certain to ask. Parents, and mothers particularly, need guidance in preparing a child for a hospital experience. A gigantic step forward in terms of parental education could be taken if the medical profession together with hospitals would routinely issue instructional leaflets to parents of children who are about to become surgical patients.

NOCTURNAL ENURESIS

Enuresis is a major problem, involving about 16% of the population between the ages 3 to 15 years. A solution is necessary for the social adjustment of the child, and those few persons in whom enuresis persists into adult life are truly handicapped. Anatomic or physiological abnormalities are present in only about 3% of those affected,¹ and since these can be treated by specific measures they do not enter into the present discussion. In any child, if bladder control is not accomplished by the time he has reached the age of 3½ years, training is likely to be difficult.

The causes proposed for nocturnal enuresis are varied and range from laziness to psychic disturbances. Holt and Holland state that bedwetting is purely a habit often associated with other habits that go with an unstable personality. Grulee and Eley say that a strong familial tendency is commonly observed in these patients and that they maintain an irritable bladder throughout life even though they are no longer enuritic. Turton and Spear² obtained electroencephalograms on 100 enuritic children and found 22 with epileptiform tracings, 28 with immature tracings, and 23 whose tracings were on the borderline of abnormality. They concluded that many enuritics who do not respond to treatment have an unsuspected physical basis for their disorder and that the electroencephalogram is of aid in the diagnosis.

Because the desire to urinate depends on the pressure within the bladder rather than on the amount of fluid O'Malley and Owens³ used methantheline (Banthine) to inhibit the local reflex vesical spasm and found that with this treatment the bladder could accommodate more fluid without an increase in intravesicular pressure. A noteworthy concomitant of this treatment was the psychological relief and increased self-confidence of the child. Some of their patients required a second course of the drug, but none required a third course.

Geppert,¹ on the other hand, has had successful results in 91% of a series of 42 children treated by conditioned response after restriction of fluid intake and rewards had failed. The method is cumbersome in that it requires special equipment and its success depends on careful observation of the details of the technique and close supervision by the parents. The patient sleeps on a moisture sensitive bed pad that is connected to an electric alarm. A moist spot the size of a silver dollar will set off the alarm. The child must be thoroughly awakened and must empty his bladder. The pad must then be replaced with a dry one and the alarm reset. The author found that sporadic bedwetters were the slowest to respond and that their progress was hardest to gauge. The chief cause of failures was poor parental cooperation.

1. Mac Keith, R.: Children in Hospital: Preparation for Operation, *Lancet* 2: 843 (Oct. 24) 1953.

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ORGANIZATION SECTION

LEGISLATIVE REVIEW

(First Session, 83rd Congress)

Following is a résumé of the major legislative measures with medical implications that were introduced during the first session of the 83rd Congress. Identical House and Senate bills have not been indicated. The listing, which shows the bill numbers, authors, interested congressional committees, purposes, and position of the American Medical Association, if any, has been broken down under the following general subjects: (1) members of armed services and their dependents, (2) veterans and veterans administration, (3) medical research and establishment of medical foundation, (4) federal subsidization of educa-

tion, (5) tax relief, (6) social security and disability insurance, (7) federal subsidization of private health insurance plans, (8) aid to the handicapped, and (9) miscellaneous. The action indicated in the last column is that taken by the Board of Trustees unless otherwise specified. Action by the Committee on Legislation is indicated when taken too recently for confirmation by the Board of Trustees. If additional information concerning the purposes of these bills or the basis for the position adopted by the Association is desired, a request should be addressed to the Committee on Legislation, 535 North Dearborn Street, Chicago 10, Ill.

C. JOSEPH STETLER, Secretary.

Members of Armed Services and Their Dependents

Bill No.	Introduced by	Congressional Committee	Subject or Purpose	Association Action and Date
S. 33	McCarran, Nev.	Armed Services, Senate	To provide hospitalization and medical care for members of Coast Guard and their dependents in military facilities	Opposition (active) 4/26/53
S. 70 *	Young, N. D.	Armed Services, Senate	To allow credit under "Doctor-Draft" law for service with countries that were allies of U.S. during World War II	Approval (active) 2/6/53
S. 1491	Potter, Mich.	Armed Services, Senate	Crediting internment time during World War II for purposes of "Doctor-Draft" law	No action 6/4/53
S. 1495	Murray, Mont.	Labor and Public Welfare, Senate	Emergency maternity and infant care program	Opposition (active) 6/4/53
S. 1531 †	Saltonstall, Mass., and Hunt, Wyo.	Armed Services, Senate	Amend and extend "Doctor-Draft" law	Approval, with amendments, 4/26/53
S. 1531 * Amendment	Hunt, Wyo.	Armed Services, Senate	Amendment to "Doctor-Draft" law re extension of \$100 per month "special pay"	
H.R. 97 *	Burdick, N. D.	Armed Services, H.R.	To allow credit under the "Doctor-Draft" law for service with countries that were allies of U. S. during World War II	Approval (active) 4/26/53
H.R. 173	Rivers, S. O.	Armed Services, H.R.	To provide hospitalization and medical care for dependents of members of armed services in military facilities	Opposition (active) 2/6/53
H.R. 2452	Boggs, La.	Armed Services, H.R.	Dispensary treatment and hospitalization for retired enlisted military personnel in military installations	Opposition (active) 4/26/53
H.R. 2756	Seely-Brown, Conn.	Armed Services, H.R.	To provide hospitalization and medical care for members of Coast Guard and their dependents in military facilities	Opposition (active) 4/26/53
H.R. 2955 *	Judd, Minn.	Armed Services, H.R.	To allow credit under "Doctor-Draft" law for previous service in nonmedical status	Approval (active) 4/26/53
H.R. 4200	Budge, Idaho	Armed Services, H.R.	Crediting internment time during World War II for purposes of "Doctor-Draft" law	No action 6/4/53
H.R. 4447	Bolton, Ohio	Armed Services, H.R.	Appointment of male nurses in U. S. Army Reserve	No action 6/4/53
H.R. 4495 †	Short, Mo.	Armed Services, H.R.	Amend and extend "Doctor-Draft" law	Approval, with amendments, 4/26/53
H.R. 4642	Bosch, N. Y.	Armed Services, H.R.	Emergency maternity and infant care	Opposition (active) 6/4/53
H.R. 5017	Short, Mo.	Armed Services, H.R.	Appointment of osteopaths in Medical Corps of Army, Navy, and Air Force	Opposition 10/22/53

Veterans and Veterans Administration

S. 370	Murray, Mont.	Labor and Public Welfare, Senate	Construction of additional Veterans Administration hospitals	Opposition (active) 4/26/53
S. 609	Sparkman, Ala.	Finance, Senate	Presumption of service connection for chronic and tropical diseases	Opposition (active) 4/26/53
S. 762	Martin, Pa.	Finance, Senate	Presumption of service connection for tuberculosis, multiple sclerosis, and psychosis	Opposition (active) 4/26/53
S. 1063	Griswold, Neb., and Ives, N. Y.	Labor and Public Welfare, Senate	Hospital care and medical treatment for veterans residing abroad	Opposition 6/4/53
H.R. 25	Rogers, Mass.	Veterans' Affairs, H.R.	Presumption of service connection for chronic and tropical diseases	Opposition (active) 4/26/53
H.R. 29	Rogers, Mass.	Veterans' Affairs, H.R.	Construction of additional Veterans Administration hospitals	Opposition (active) 4/26/53
H.R. 33	Rogers, Mass.	Veterans' Affairs, H.R.	Presumption of service connection for tuberculosis, psychosis, and multiple sclerosis	Opposition (active) 4/26/53
H.R. 35	Rogers, Mass.	Veterans' Affairs, H.R.	Hospital care and medical treatment for disabled veterans visiting or residing abroad	Opposition 4/26/53
H.R. 45	Rogers, Mass.	Veterans' Affairs, H.R.	Presumption of service connection for malignant tumors	Opposition (active) 4/26/53
H.R. 46	Rogers, Mass.	Veterans' Affairs, H.R.	Presumption of service connection for tuberculosis for World War II veterans	Opposition (active) 4/26/53
H.R. 54	Rogers, Mass.	Veterans' Affairs, H.R.	To authorize appointment of chiropractors in Veterans Administration	Opposition (active) 4/26/53
H.R. 333	Rogers, Mass.	Veterans' Affairs, H.R.	To authorize outpatient treatment by Veterans Administration for non-service-connected disabilities	Opposition (active) 4/26/53
H.R. 1414	Rogers, Mass.	Veterans' Affairs, H.R.	To provide interchange of hospital facilities between Veterans Administration and Department of Defense	Approval 4/26/53

* Subject of bill included in Public Law 84, 83rd Congress, June 29, 1953.

† Identical with H.R. 4495 enacted into Public Law 84, 83rd Congress, June 29, 1953.

‡ Enacted into Public Law 84, 83rd Congress, June 29, 1953.

Veterans and Veterans Administration—Continued

Bill No.	Introduced by	Congressional Committee	Subject or Purpose	Association Action and Date
H.R. 2097	Hagen, Minn.	Veterans' Affairs, H.R.	Presumption of service connection for pulmonary tuberculosis	Opposition (active) 4/26/53
H.R. 2573	Rogers, Mass.	Veterans' Affairs, H.R.	Extension of hospital care for veterans of Spanish-American War	Opposition (active) 4/26/53
H.R. 2980	Rogers, Mass.	Veterans' Affairs, H.R.	To authorize appointment of optometrists in Veterans Administration	Opposition 4/26/53
H.R. 3070	Frellinghuysen, N. J.	Veterans' Affairs, H.R.	Presumption of service connection for amyotrophic lateral sclerosis	Opposition (active) 4/26/53
H.R. 4601	Teague, Texas	Veterans' Affairs, H.R.	Amendment to law authorizing hospitalization and medical care for veterans with non-service-connected disabilities	Opposition (active) 6/4/53
H.R. 5012	McCarthy, Minn.	Veterans' Affairs, H.R.	Presumption of service connection for pulmonary tuberculosis and multiple sclerosis	Opposition (active) 10/22/53
H.R. 5636 §	Radwan, N. Y.	Veterans' Affairs, H.R.	Presumption of service connection for all types of tuberculosis	
H.R. 5892	Rogers, Mass.	Veterans' Affairs, H.R.	To increase federal contribution to state and territorial homes for veterans' care	Opposition (active) 10/22/53
H.R. 5893	Rogers, Mass.	Veterans' Affairs, H.R.	Medical care for retired military personnel	Approval 10/22/53
H.R. 6016	Teague, Texas	Veterans' Affairs, H.R.	Amend existing law relative to hospitalization and medical care of veterans	Opposition 10/22/53
H.Res. 140	Kelly, N. Y.	Rules, H.R.	Investigation of Veterans Administration	Approval (active) 4/26/53
Medical Research and Establishment of Medical Foundation				
S. 156	Langer, N. D.	Labor and Public Welfare, Senate	Establishment of National Epilepsy Institute	Opposition (active) 4/26/53
S. 188	Neely, W. Va.	Labor and Public Welfare, Senate	Federal subsidization of cancer research	Opposition (active) 4/26/53
S. 977 †	Smith, N. J., and Alken, Vt.	Labor and Public Welfare, Senate	Provision of additional funds to National Science Foundation	
H.R. 563	Rooney, N. Y.	Foreign Affairs, H.R.	Federal subsidization of cancer research	Opposition (active) 4/26/53
H.R. 2290	Morrison, La.	Interstate and Foreign Commerce, H.R.	Establishment of National Institute for Polio-myelitis	Opposition (active) 4/26/53
H.R. 4689 ¶	Wolverton, N. J.	Interstate and Foreign Commerce, H.R.	To amend the National Science Foundation Act of 1950	
H.J.Res. 166	Hinshaw, Calif.	Rules, H.R.	Establishment of Joint Committee on Science	No action 4/26/53
H.Res. 286	Metcalf, Mont.	Rules, H.R.	To study ways of preventing and controlling silicosis	No action 10/22/53
Federal Subsidization of Education				
S. 461	Humphrey, Minn.	Labor and Public Welfare, Senate	Federal aid for public health education	Opposition (active) 4/26/53
S. 1515 ‡	Hunt, Wyo., and 11 other Senators	Labor and Public Welfare, Senate	Establishment of Western Interstate Commission for higher education	
S. 2168	Langer, N. D.	Labor and Public Welfare, Senate	College scholarship loans	Opposition (active) 10/22/53
H.R. 250	Elliott, Ala.	Education and Labor, H.R.	Federal aid to health and safety instruction and physical education in public elementary and secondary schools	Opposition (active) 4/26/53
H.R. 1240	Cole, N. Y.	Armed Services, H.R.	To establish cadet nurse programs	Opposition 12/3/53 (Committee on Legislation)
H.R. 2718	Heller, N. Y.	Interstate and Foreign Commerce, H.R.	Creation of U. S. Medical and Dental Academy	Opposition (active) 4/26/53
H.R. 2838	Elliott, Ala.	Education and Labor, H.R.	Federal aid in fields of higher education	Opposition (active) 4/26/53
H.R. 3850	Bolton, Ohio	Interstate and Foreign Commerce, H.R.	Federal aid to nursing education	Opposition 10/22/53
H.R. 6079	Boland, Mass.	Education and Labor, H.R.	College scholarship fund	Opposition (active) 10/22/53
Tax Relief				
S. 898	Johnson, Colo.	Finance, Senate	Tax relief for permanently and totally disabled	No action 4/26/53
S. 1154	Ives, N. Y., and Flanders, Vt.	Finance, Senate	Provide for deduction of health insurance premiums for income tax purposes	Opposition 6/4/53
H.R. 10	Jenkins, Ohio	Ways and Means, H.R.	Postponement of tax payments on amounts used to purchase retirement annuities	Approval (active) 2/6/53
H.R. 11	Keogh, N. Y.	Ways and Means, H.R.	Postponement of tax payments on amounts used to purchase retirement annuities	Approval (active) 2/6/53
H.R. 474	Keating, N. Y.	Ways and Means, H.R.	Deduction of medical expenses for income tax purposes	Approval (active) in principle, 4/26/53
H.R. 482	Keating, N. Y.	Ways and Means, H.R.	Provide deduction of health insurance premiums for income tax purposes	Approval in principle 4/26/53
H.R. 1029	Hand, N. J.	Ways and Means, H.R.	Provide deduction of health insurance premiums for income tax purposes	No action 4/26/53
H.R. 1725	Rhodes, Pa.	Ways and Means, H.R.	Tax relief for permanently and totally disabled	No action 4/26/53
H.R. 2243	Dague, Pa.	Ways and Means, H.R.	Removal of 5% limitation on medical expense deductions from income tax	Approval (active) in principle, 4/26/53
H.R. 3375	Matthews, Fla.	Ways and Means, H.R.	Removal of 5% limitation on medical expense deductions for income tax purposes	Approval (active) in principle, 6/4/53
H.R. 3583	Hale, Maine	Ways and Means, H.R.	Provide for deduction of health insurance premiums for income tax purposes	Opposition 6/4/53
H.R. 3585	Javits, N. Y.	Ways and Means, H.R.	Provide for deduction of health insurance premiums for income tax purposes	Opposition 6/4/53
H.R. 3911	Bolton, Ohio	Ways and Means, H.R.	Removal of limitation on medical expense deductions for income tax purposes	Approval (active) in principle, 6/4/53
H.R. 4393	Davis, Ga.	Ways and Means, H.R.	Professional education expense deductions for income tax purposes	Approval (active) 6/4/53
H.R. 4450	Edmondson, Okla.	Ways and Means, H.R.	Increase of allowable medical expense deductions for income tax purposes	Approval (active) in principle, 6/4/53

§ Enacted into Public Law 241, 83rd Congress, Aug. 8, 1953.

† Enacted into Public Law 223, 83rd Congress

¶ Identical with S. 977 enacted into Public Law 223, 83rd Congress.

‡ Enacted into Public Law 226, 83rd Congress, Aug. 8, 1953.

Tax Relief—Continued				
Bill No.	Introduced by	Congressional Committee	Subject or Purpose	Association Action and Date
H.R. 4981	Curtis, Mo.	Ways and Means, H.R.	Medical expense deductions for income tax purposes	Approval (active) in principle, 10/22/53
H.R. 5022	Kersten, Wis.	Ways and Means, H.R.	Medical expense deductions for income tax purposes	Approval (active) in principle, 10/22/53
H.R. 5399	McDonough, Calif.	Ways and Means, H.R.	Medical expense deductions for income tax purposes	Approval (active) in principle, 10/22/53
Social Security and Disability Insurance				
S. 1470	Kefauver, Tenn.	Finance, Senate	Voluntary coverage under Social Security Act for physicians and others	No action 6/4/53
S. 1966	Murray, Mont., Humphrey, Minn., and Lehman, N. Y.	Finance, Senate	Hospitalization for the aged	Opposition (active) 10/22/53
S. 2260	Lehman, N. Y., for himself and 10 other Senators	Finance, Senate	Revision of Old-Age and Survivors' Insurance; extension of coverage, disability benefits, etc.	Opposition (active) 10/22/53
H.R. 8	Dingell, Mich.	Ways and Means, H.R.	To provide 60 days' "free" hospital care each year for OASI beneficiaries	Opposition (active) 2/6/53
H.R. 9	Dingell, Mich.	Ways and Means, H.R.	To effectuate Section 3 of P.L. 590, 82nd Congress, "freezing" benefits of OASI beneficiaries who are permanently and totally disabled	Opposition (active) 2/6/53
H.R. 383	Byrd, W. Va.	Ways and Means, H.R.	To provide Social Security disability insurance benefits for totally disabled persons	Opposition (active) 4/26/53
H.R. 1376	Bryson, S. C.	Ways and Means, H.R.	Permanent and total disability insurance	Opposition (active) 4/26/53
H.R. 2000	Rhodes, Pa.	Ways and Means, H.R.	Permanent and total disability insurance	Opposition (active) 4/26/53
H.R. 2070	Bailey, W. Va.	Ways and Means, H.R.	To amend Social Security Act to include payment of disability benefits equal to retirement benefits	Opposition (active) 4/26/53
H.R. 2150	Van Zandt, Pa.	Ways and Means, H.R.	Permanent and total disability insurance	Opposition (active) 4/26/53
H.R. 3487	Lane, Mass.	Ways and Means, H.R.	To extend Social Security coverage to include self-employed persons	Opposition (active) 6/4/53
H.R. 3554	Zablocki, Wis.	Ways and Means, H.R.	Total and permanent disability insurance under Social Security Act	Opposition (active) 6/4/53
H.R. 3777	Perkins, Ky.	Ways and Means, H.R.	To amend Social Security Act to include payment of disability benefits equal to retirement benefits	Opposition (active) 6/4/53
H.R. 4160	Kean, N. J.	Ways and Means, H.R.	Waiver of Social Security premiums for disability	Opposition (active) 6/4/53
H.R. 4676	Ford, Mich.	Ways and Means, H.R.	Social Security-public assistance programs to include medical care	Opposition (active) 6/4/53
H.R. 5533	Kean, N. J.	Ways and Means, H.R.	Amendment to Title II of the Social Security Act to increase benefits and revise method of computation	Approval 10/22/53
H.R. 5917	Radwan, N. Y.	Ways and Means, H.R.	Total disability insurance under Social Security	Opposition (active) 10/22/53
H.R. 6034	Dingell, Mich.	Ways and Means, H.R.	Extension of Social Security coverage; permanent and total disability benefits, etc.	Opposition (active) 10/22/53
H.R. 6115	Fine, N. Y.	Ways and Means, H.R.	Total and permanent disability benefits under Social Security Act	Opposition (active) 10/22/53
H.R. 6812	Reed, N. Y.	Ways and Means, H.R.	Extension of Social Security coverage	Opposition 10/22/53
Federal Subsidization of Private Health Insurance Plans				
S. 93	Hill, Ala.	Labor and Public Welfare, Senate	Federal subsidization of prepayment plans for hospitalization and medical care	Opposition (active) 2/6/53
S. 1052	Humphrey, Minn.	Labor and Public Welfare, Senate	Federal aid to health insurance plans	Opposition (active) 4/26/53
H.R. 4593	Hagen, Minn.	Interstate and Foreign Commerce, H.R.	Federal aid to health insurance plans	Opposition (active) 6/4/53
Aid to the Handicapped				
S. 2145	Humphrey, Minn.	Labor and Public Welfare, Senate	Vocational rehabilitation for the mentally afflicted	Opposition 12/3/53 (Committee on Legislation)
S. 2436	Potter, Mich.	Labor and Public Welfare, Senate	Vocational rehabilitation of the blind	Opposition 10/22/53
S. 2437	Potter, Mich.	Labor and Public Welfare, Senate	Vocational rehabilitation	Opposition 10/22/53
S. 2570	Murray, Mont., and 9 other Senators	Labor and Public Welfare, Senate	Agency for Handicapped	Opposition 10/22/53
H.R. 402	Celler, N. Y.	Education and Labor, H.R.	To increase rehabilitation benefits and grants for handicapped	Opposition (active) 4/26/53
H.R. 2096	Hagen, Minn.	Education and Labor, H.R.	Establishment of federal Agency for Handicapped	Opposition 4/26/53
H.R. 5562	Rhodes, Ariz.	Education and Labor, H.R.	Vocational rehabilitation of the blind	Opposition 10/22/53
H.R. 5563	Rhodes, Ariz.	Education and Labor, H.R.	Vocational rehabilitation	Opposition 10/22/53
H.R. 6637	Wainwright, N. Y.	Education and Labor, H.R.	Vocational rehabilitation of the blind	Opposition (active) 10/22/53
Miscellaneous				
S. 106 **	Ferguson, Mich.	Government Operations, Senate	Establishment of Commission to Study Reorganization of Executive Branch of Government	Approval 2/6/53
S. 132	Thye, Minn., and Butler, Neb.	Interior and Insular Affairs, Senate	To transfer Indian hospitals to United States Public Health Service	Approval (active) 4/26/53
S. 601 ††	Humphrey, Minn.	Labor and Public Welfare, Senate	Factory inspections by Food and Drug agents	Approval with amendments, 4/26/53

** Enacted as Public Law 168, 83rd Congress, July 10, 1953.

†† Similar to H.R. 6740 enacted as Public Law 217, 83rd Congress, Aug. 7, 1953.

Miscellaneous—Continued

S. NO.		Introduced by	Congressional Committee	Subject or Purpose	Association Action and Date
S. 9733		Taft, C.M. and Hill, A.H.	Labor and Public Welfare, Senate	Extension of Hill-Burton Act	Approval 4/2/37
S. 9734		Stewart, H.W. and others	Labor and Public Welfare, Senate	Federal aid to local public health units	Opposition 4/2/37
S. 9735		Jones, N. Y. and Flannery, W.	Labor and Public Welfare, Senate	Conditions for providing federal aid to voluntary health plans, medical education, health facilities, etc.	Opposition (active) 4/4/37
S. 9736		East, W.F.	Government Operations, Senate	Establishment of Department of Health, Education, and Public Welfare	
S. 9737		Goodell, H.H.	Government Operations, Senate	Federal Board of Hospitalization	Opposition to Hill approval of principle 4/4/37
S. 9737-1		Taft, C.M.	Government Operations, Senate	Establishment of Commission on Governmental Functions and Fiscal Resources	Approval (active) 4/2/37
S. 9738		Murray, Miss	Labor and Public Welfare, Senate	Aid to liquor victims	Opposition (active) 4/4/37
S. 9739		Taft, C.M.	Judiciary, Senate	To incorporate the National Fund for Medical Education	Approval with amendments 4/2/37
S. 9740		East, W.F. and Burton, W.L.	Labor and Public Welfare, Senate	Treatment of narcotic addicts	Approval 4/2/37
S. 9741		Carson, E.H.	Post Office and Civil Service, Senate	Withholding of health insurance premium from failure of federal employees	Approval 4/2/37
S. 9742		Boyers, N. H.	Judiciary, Senate	Prohibiting transportation of fireworks	Approval in principle 4/2/37
S. 9743		Holmes, W.G. and Brown, N.C.	Interior and Insular Affairs, Senate	Abolishment of Bureau of Indian Affairs	
S. 9743*		Boyers, C.H. and Cooper, Searles	Judiciary, Senate	Proposed amendment to Constitution relative to making of treaties and executive agreements	Approval in principle 4/2/37 House of Delegates
S. 9743-1		Goodell, H.H.	Tobacco	Amendment to Smoker regulation regarding treaty-making powers	
S. 9743-2		Carson, E.H.	Judiciary, H.R.	Prohibit transportation of fireworks	Approval in principle 4/2/37
S. 9744		Jones, N.Y.	Interior and Insular Affairs, Senate	To transfer Indian schools to United States Public Health Service	Approval (active) 4/2/37
S. 9745		Tamm, Tamm	Veterans Affairs, H.R.	To establish Federal Board of Hospitalization	Opposition to Hill approval of principle 4/2/37
S. 9745-1		Boyers, C.H.	Government Operations, H.R.	To establish Commission to Study Reorganization of Executive Branch of Government	Approval 4/2/37
S. 9745-2		Allen, C.H.	Post Office and Civil Service, H.R.	Partial exemption of hospitalization insurance premiums from compensation of federal employees	Opposition 4/4/37
S. 9745-3		Thorp, W.H.	Interior and Foreign Commerce, H.R.	National compulsory health insurance conditions	Opposition (active) 4/2/37
S. 9745-4		Boyers, N. H.	Interior and Foreign Commerce, H.R.	Establishment of Bureau of clinics for chronic alcoholics and narcotic addicts	Opposition 4/2/37
S. 9745-5		Wolcott, N. J.	Interior and Foreign Commerce, H.R.	Factory inspection by Food and Drug Agency	Approval with amendments 4/2/37
S. 9745-6		Boyers, Miss	Veterans Affairs, H.R.	To establish Federal Board of Hospitalization	Opposition to Hill approval of principle 4/2/37
S. 9745-7		East, A.H.	Interior and Foreign Commerce, H.R.	Extension of Hill-Burton Act	Approval 4/2/37
S. 9745-8		Allen, N.H.	Interior and Foreign Commerce, H.R.	Establishment of Department of Public Health and Welfare	
S. 9745-9		Tamm, T.	Interior and Foreign Commerce, H.R.	Treatment of narcotic addicts in Public Health Service hospitals	Approval 4/4/37
S. 9745-10		Salmon, M.	Interior and Foreign Commerce, H.R.	Factory inspection by Food and Drug Agency	Approval with amendments 4/2/37
S. 9745-11		Jones, N. Y.	Interior and Foreign Commerce, H.R.	Conditions for providing federal aid to voluntary health plans, medical education, health facilities, etc.	Opposition (active) 4/4/37
S. 9745-12		Boyers, W. L.	Education and Labor, H.R.	Federal funds to improve industrial safety	Opposition 4/4/37
S. 9745-13		Goodell, H.H.	Government Operations, H.R.	Establishment of Commission on Governmental Functions and Fiscal Resources	Approval (active) 4/2/37
S. 9745-14		Boyers, N. H.	Interior and Foreign Commerce, H.R.	Federal aid for ambulance service	Opposition 4/4/37
S. 9745-15		East, A.H.	Interior and Foreign Commerce, H.R.	Extension of Hill-Burton Act	Approval 4/2/37
S. 9745-16		Allen, N.H.	Interior and Foreign Commerce, H.R.	Treatment of narcotic addicts	Approval 4/2/37
S. 9745-17		Wolcott, N. J.	Interior and Foreign Commerce, H.R.	Factory inspection by Food and Drug Agency	
S. 9745-18		Thompson, L.	Interior and Foreign Commerce, H.R.	Aid to liquor victims	Opposition (active) 4/2/37
S. 9745-19		Amsharov, N. S.	Judiciary, H.R.	Proposed amendment to Constitution relative to making of treaties and executive agreements	Approval (active) 4/2/37
S. 9745-20		Ray, N. H.	Interior and Foreign Commerce, H.R.	Control of air pollution	Approval 4/4/37
S. 9745-21		Boyers, M.	Public, H.R.	Problems of the aging	No action 4/4/37
S. 9745-22		Holmes, N. H.	Public, H.R.	Study of accidents and health insurance	No action 4/2/37

22 Enacted as Public Law 111, 81st Congress, July 21, 1937.
23 Enacted as Public Law 110, 81st Congress, July 21, 1937.
24 Identical with S. 9745 enacted as Public Law 111, 81st Congress, July 21, 1937.
25 Identical with S. 9745 enacted as Public Law 111, 81st Congress, July 21, 1937.
26 Identical with S. 9745 enacted as Public Law 110, 81st Congress, July 21, 1937.
27 Enacted as Public Law 117, 81st Congress, Aug. 7, 1937.

PUBLIC RELATIONS CONFERENCE

The following papers were presented before the Sixth Medical Public Relations Conference of the American Medical Association, Nov. 30, 1953, Jefferson Hotel, St. Louis.

Address of Dr. Walter B. Martin, President-Elect, American Medical Association

I am particularly pleased with the theme of this conference because it has an important purpose, public relations. If a business man or some other layman should come into this meeting and glance over the audience, he might wonder what brought us together, why you men, leaders in the medical world, should leave the activities and pleasures of home and travel long distances to meet in conference here today. What important business do you have to transact? What will this profit you and those you look after in your community?

All of you who serve medicine and the medical welfare of your people and who have kept burning the lamp of idealism will often find yourselves puzzled and disturbed by some of the problems of medicine in our modern society. We recall the stature and dignity of the physician that we knew in our youth and the high regard in which he was held by all in his community. Possibly his example inspired us to enter the profession and, by so doing, to strive to render service to humanity. Now, perhaps, we are concerned with the problems in practice that arise in a more complex community and by the attitude of persons toward us, not so much as individuals but as a group. We hear charges and countercharges against our profession. We are aware of conflict between practicing physicians and hospitals and of discussions of problems in the twilight zone between medical practice and preventive medicine. We are conscious of the wide appeal in many areas of proposals to alter the basic set-up of medical practice, by socializing the entire medical profession. These problems cannot be solved by any one of us or by any local or state society acting alone. While their importance or urgency may vary from community to community and from region to region in different degrees, they affect all of us. It is necessary, therefore, that we gather together on a national level and take counsel with each other. Here we should assemble facts, exchange ideas, formulate programs, and, in honesty and sincerity, attempt to perfect a plan of action that will be of help in providing better medical care for all of our people.

I like to think of public relations not as a means of putting ourselves in a better light before the public but as a way by which we can learn better how to serve the public and to constantly enhance the quantity and quality of medical care and its availability. The first step is to look at ourselves as individual practitioners and to examine ourselves as a group, acting through our local, state, and national organizations. Does the light of idealism glow less brightly among us than it did a generation ago? In a crowded, busy life have other considerations than that of service taken first place in our thinking? We have as a professional group a great responsibility. As a learned profession, no other but ourselves can justly judge our competency as physicians or establish standards of our responsibility to our patients and to society. By reason of our expert knowledge in the field of health, we are better able to estimate the effect for good or evil of proposals in the field of health. If our judgment is given honestly and fearlessly for the common good, it should and will carry weight. If it is founded on ignorance or colored by self-interest, it will be disregarded.

It follows, therefore, that the first duty of this group is to consider ways and means of further developing effective relations through state and county organizations with individual physicians. We should strive to stimulate every physician to carry out the major purpose of the American Medical Association, "The advancement of the science and art of medicine and the betterment of public health." This purpose will be accomplished when each member of the profession has due regard for his total obligation as a physician.

I was raised in the country near a small village. There were four men in the community who commanded the respect and the confidence of the community as a whole: the minister, the teacher, the judge, and the doctor, who severally represented in the eyes of the community morality, learning, justice,

and health. These are still fundamental concepts in any community. Somewhere in the growing complexity of life, these concepts may have been lost or confused, but they should be reactivated everywhere. The physician should be as interested in and as responsible for the total health of his community as he was in village life. He should be active in his professional society, in his place of worship, and in his community welfare agencies. He cannot of course "cover the waterfront," but if he selects one or more of these activities, he will be a better doctor, with a broader outlook on life, and its total responsibilities.

One of the primary accomplishments that should flow from this meeting is the stimulation of greater interest in our local society. The impact of the activities of a local society on its community can be greater than that of state or national organizations operating in their broader field. It is unfortunate that the concept of the physician as a man of science has too completely replaced that of the physician as a healer. The pursuit of knowledge has replaced the search for wisdom. Attendance on the hospital staff conferences has depreciated attendance at local society meetings. It is at these society meetings that the real purposes and objectives of organized medicine should be discussed and community health and welfare considered and furthered. Such activities on the part of local societies will solve many of our problems and will meet in their inception many of the criticisms, just and unjust, that are levelled against us.

There is a second field of public relations that concerns us. Medicine has outgrown the little black bag. Health is no longer entirely an individual matter between a physician and a patient, however important that phase of medicine may be. Society has become more complex. The proper field of activity of public health agencies has been extended. Hospitals have expanded and improved and have become a more important factor in community life. Conflicts have arisen between medicine, public health, hospitals, and other agencies in the health field. Development of proper relations between medicine and these other components in the field of health is of extreme importance. Problems that arise need careful joint exploration for the purpose of coordinating all health activities for the total benefit of the public. Here again, the local society should take leadership in its community. On the national level, broad general principles may be laid down and agreed upon, but in a country as large and diverse as ours, these principles must be activated locally and adjusted on the basis of local conditions and needs.

The third phase of public relations is to bring the story of medicine to the people. The scope of the activities of organized medicine of course goes far beyond the department of public relations and covers health education, medical education, protection in the field of food and drugs, plan for extension of medical care, promotion of scientific advancement, and many other endeavors of the American Medical Association. These numerous and valuable activities for the betterment of the public health need to be brought home to all doctors and to all people. The story of the contribution of organized medicine to the public welfare is thrilling and is a record of which we can be justly proud. It needs to be told again and again until it is known in the city streets and at the country crossroads. It needs to be told so that persons know what are the components of good medicine and why socialization of medicine is bad, not for the doctor necessarily but for themselves. Many proposals are being put forward in the field of health, purporting to advance the medical welfare of the people. Some of these are good, some vicious, some silly, and some just plain stupid. It is necessary for us to study these proposals and to consider their effect for good or evil on the public health. It is equally our duty to make public our considered judgment in these matters. It is as much our duty to do this as to explore the cause of a disease in a patient and advise him according to our best knowledge and ability.

Most of the activities of this department can best be carried out on the local level, and correction of abuses can be made effective only there. Our national organization is without punitive power and should have none. Our success in the field of public and professional relations must be accomplished

through the power of persuasion. This should begin in the medical schools, somewhere during the formative years of the undergraduate and graduate student of medicine. The student should learn something of the duty of medicine to society and of the moral obligation that is assumed by a person who is called a physician.

Entrance into a medical society should not be a casual occurrence but should be marked by the seriousness and dignity that accompanies the taking on of a solemn obligation. Perhaps there should be a period of instruction given at intervals by older physicians, covering the ethics of our profession and the physician's duty to the patient, to his community, and to his profession.

You men who are gathered here have an important role to play. If we build well on the foundation of sound and active local societies, if we carry to the people a knowledge of what constitutes good medicine and if we coordinate for the common good all of the forces in the field of health, we need fear no evil.

Address of Dr. Leo H. Bartemeier, Chairman, Committee on Mental Health, American Medical Association

The confidence and the respect that the public manifests toward medicine is neither peculiar to the present era nor solely dependent on the quality of medical care. These favorable attitudes are ancient in their lineage. They are as old as medicine itself. All peoples in all times have placed their faith and their trust in their physicians. The medical man of mediocre ability may be regarded by the community as a far better doctor than a colleague whose intelligence and scientific training are obviously of superior quality.

The judgment of the community is usually correct, because adequate medical care involves the personality of the physician as well as his scientific acumen and his technical skill. His personality and his reputation as a person in the community are of immediate importance to patients and their families. They wish to know about his medical training and his professional experience but "What is he like? What sort of man is he?" are usually their first questions. This interest in the personality of the doctor bears a striking similarity to present-day medical teaching, which maintains that it is as important to know what kind of a person has an illness as it is to know from what kind of illness the patient suffers. Medicine, too, has a strong interest in personality, because perhaps 30 to 40% of illness is known to represent reactions of personality to crises and stress in life situations. In other words, it is not a question whether a patient's illness is organic or functional but rather to what extent is it organic and to what extent is it functional? All sickness is a combination of both in varying proportions.

The majority of sick persons hope that their physician, in addition to his medical knowledge and skill, will have sufficient interest in them so that they may have his complete attention. They want to sense that he cares how they feel and that he will relieve their suffering as quickly as possible. They hope he will be kind and that he will take his time with them. They hope that what they have to tell him will seem as important to him as it does to them.

At the same time, most persons are afraid of doctors when they go to them for the first visit. They are afraid that, in the course of being examined, the doctor will come to know what they know about themselves and that he will criticize them, become angry with them, and dismiss them from his care. They are afraid that the physician will discover that their sickness is more serious than they had suspected. They often fear the worst. At the time of the first consultation, they may show no signs of being afraid. They try to be courageous and to make a good impression, because they hope the doctor will like them. In protecting themselves from expected criticism, they may frequently criticize themselves to ward off any critical attitude on the part of their physician. Others react to their inner fright by boldness or by being critical of the profession or even the doctor himself. Because they are afraid, they attack.

There is another group of patients who consult physicians because of various physical complaints who may be described as repeatedly difficult and disagreeable. Regardless of kindness, patience, and tolerance; regardless of what medicaments

or other treatments are prescribed, this group of patients, instead of obtaining relief from suffering, continue to suffer and frequently complain that they suffer more than before they began treatment. They try to provoke their doctor to become angry with them, to scold them, and to treat them harshly and severely. When they succeed, they seem to improve, but this improvement is only transitory. They tend to be uncooperative in following advice, they misinterpret what their physicians tell them, they break appointments, they are continually dissatisfied, and yet they insist on remaining in their physician's care. Some of these patients then begin to reason that they need surgery, and they are so persuasive and so certain that an operation will relieve them of their abdominal pain or their pelvic symptoms that they sometimes succeed in overcoming their doctor's doubts. For a time, then, they are relieved, but sooner or later their previous symptoms recur, or new symptoms develop. This group of patients, unlike the majority of patients, consult physicians not for relief from pain, discomfort, or distress, but, because they unconsciously seek greater pain and suffering than their original complaints provided. Unlike most persons, this group finds satisfaction in suffering in an effort to relieve their unconscious sense of guilt or to satisfy their masochistic strivings. Every practicing physician is familiar with patients who belong to this group. They often consult one doctor after another. Their motivation toward medicine is in direct contrast to that of most persons.

When persons become sick or are injured in accidents, they simultaneously undergo psychological changes in their relationships to others that are of varying degrees of intensity. These changes, which accompany every sickness or injury, are sometimes more important than the illness itself, and they frequently constitute the primary motivation toward medicine. It is well known to practicing physicians, for example, that many patients who consult them are more frightened than sick and that, when they have been reassured that their illness is not serious and that they will soon recover, their emotional relief makes the importance of their physical complaints shrink to a minimum. They are like children who because of having fallen to the pavement or because of the sight of blood from an abrasion of the skin run screaming to their mothers. They are far more frightened than injured, and, after a moment in their mother's arms and with her reassurance, they quickly resume their play.

Physicians do well to remember that some of their patients who expect their doctors to relieve them by magic-like methods are patients who expect as quick relief as they obtained in their childhood. An infant screaming in its crib becomes instantly silent in the moment it is taken into its mother's arms. Every human being has had identical experiences not only during infancy but also in childhood.

Children undergo many minor and transitory pains and aches as well as slight illnesses that disappear through the care they receive from their mothers. It is, therefore, only natural that they should believe that their mothers understand them very well and know just what to do for them. Many adult patients expect the same understanding and attitude from their physicians, the same omniscience and the same omnipotence they believed their mothers possessed. The past is always a part of the present and often more important than a current illness *per se*. All good clinicians recognize this fact but tend to lose sight of it during a busy practice.

With some patients, the anxiety they suffer in connection with the occurrence of illness is derived from the dread that they may experience the same fate as some member of their family whose death they had secretly wished. Although they are sick and in need of medical care, it is their anxiety that is the more important motivating force in bringing them to the physician. When they say, "You won't let anything happen to me, will you doctor?" they show that they are afraid that they might die. They also show their belief that only their doctor can save them. To admonish such a patient not to "be so foolish" or to become angry because one has told the patient again and again that he will recover shows that one does not understand the patient who has the illness. Repeated failure to understand patients in matters of a serious nature to them tends to motivate them away from medicine.

In the course of sickness that is incapacitating, many persons undergo a psychological regression. The feeling of being helpless and of having to be completely dependent upon others even, perhaps, to the extent of having to be fed, bathed, and toileted, is a reinstatement to the period of infancy. In these circumstances, some patients make incessant demands on their physicians, their nurses, and their families. They become afraid to be left alone, burst into tears over slight disappointments, and are unable to show any consideration whatever for their physicians or anyone else. The psychological change that has taken place in such patients consists in the fact that their psychic energy, which was formerly invested in their families and friends, their work, and their play, has become reinvested entirely upon themselves. This regression to an early phase of emotional life, which may occur, for example, in a patient with a fractured femur, is not "an act" or an intentional way of behaving. It is, on the contrary, a reaction of the personality in connection with the treatment of a fractured femur. It becomes the more important aspect of the illness. The patient's family knows that whenever he must be confined to bed he becomes very difficult to care for, that, under these circumstances, he is "not like his usual self" and that he is not intentionally dramatic. To become severe with such a patient, to restrict the frequent attention he needs, and to prevent him from having visitors is to do both the patient and his family a serious disservice. It demonstrates that the physician does not understand the patient, and it comes as no surprise when his services are discontinued by the family. Clinicians who do understand the concomitant psychological alterations in such patients are less likely to lose their tempers with them. To remain calm and collected in situations in which both the patient and the members of the family are anxious and distraught has a quieting and reassuring effect and has always been characteristic of the good physician. The following statements in the report of the first Conference on Psychiatry and Medical Education are pertinent:

"The medical profession has in our society gained a very large measure of respect and trust. People turn to physicians for salvation from distress or anxiety of the most varied origins. Such a challenge to the medical profession cannot be ignored. In what measure can it be met? The traditional and continuing major function of the physician is to care for patients with physical illness. The current demand is that he perform this function with sufficient understanding of the emotional attitudes and social problems of the patient and those in close relationship to him, so that the patient and the family are enabled to participate in and make optimal use of medical care. This demand is a realistic one which the physician can be expected to fill.

"Advances in medical science have brought about the realization that mental and emotional conditions cause or contribute to illness (with either physical or psychological symptomatology) and affect the course of treatment. As a result, the physician is becoming more aware of the concept of multiple causality or a constellation of causal factors in the diagnosis and treatment of pathology.

"The physician's functions overlap to a considerable extent the functions of other professional workers in the community. The medical profession must avoid the mistake of thinking that it can do the whole job. Such mistaken ideas are fostered by narrow professional jealousies and by the public itself, as is indicated in the wide range and varied types of needs which the doctor is expected to serve. Medicine has provided such excellent service in certain fields of somatic disease that the assumption is naturally made that it can be similarly competent in other areas. This has brought about the attitude of looking to the physician for the solution of a good many problems, some of which are or should be within his province, and some of which are not. What then, is the special contribution of the physician? It is true that no one doctor can master all the technical knowledge and skills of the different specialties—science has grown so fast. But it is not asking a doctor to take on the specialty of psychiatry to ask him to use some general principles which psychiatry (and physiology) can place in his hands. It is not suggested that a doctor abandon his valuable laboratory reports, but it is urged that he keep them from pushing other considerations

out of the picture. There are two sentences of Francis Peabody, a professor of medicine, which describe the doctor's full job. 'The clinical picture is not just a photograph of a man sick in bed: it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes and fears.' 'The secret of the care of the patient is in caring for the patient.' The good doctor will balance the physiological data in his field against the condition of the patient as a person in his family and social background; he will try to increase the patient's security in an insecure world; to increase the patient's dignity as an individual and not a case, and to make him feel it is important to him, the physician, that this particular patient should return to his place in the world. As a result of these unique qualities and contributions, the physician stands in the community as a special authority to whom one can go with trust and confidence."

This was the consensus of some 70-odd professors of psychiatry and deans of medical schools in a conference in 1951. In preparation for this conference, 3,500 questionnaires were sent to bankers, industrialists, unions, teachers, lawyers, ministers, social scientists, and over 400 women, the larger proportion being housewives. Over 700 replies were received. The questionnaires consisted of 10 questions asking what persons in the community think are the common emotional needs of people, how the doctor could best meet these needs, and whether he is doing so. The replies emphasized repeatedly that doctors are viewed as hardworking, conscientious, and respected; that too much is expected of doctors; that doctors have an olympian view of themselves; that doctors are too busy to do all they might; that in the treatment of physical disease, doctors do not consider the feelings of patients and even accentuate anxieties; that they increase fear by not explaining things to patients in nontechnical language and that there is a great tendency to turn to a nonmedical, miscellaneous assortment of persons for outside help. In reply to the question, "Can the doctor help with emotional needs?" most answers indicated that (1) the doctor could help in terms of counseling, being a good listener, showing continued sympathy and understanding of the patient as a human being and eliminating assembly-line methods. The replies to the question, "What are the common emotional needs of people?" included a wide range: health and economic security, feelings of loneliness, insecurity, anxiety, frustration, familial needs, and fears of many kinds. These are the motivations that influence a considerable percentage of the public toward medicine. In some instances, persons turn to their physicians openly for advice and assistance with personal and family problems because it is their physicians in whom they have the greatest faith and confidence. In a good many other instances, their worries, fears, and feelings of helplessness over their situations are concealed beneath their presenting complaints of headaches, nervousness, tenseness, backache, mild anorexia, and undue fatigue. More and more persons are turning to doctors with problems that physicians can regard only as being beyond the scope of their professional training, and it is only natural that doctors develop the feeling that these patients are unrealistic in their requests. To refer these patients to another physician, to a clergyman, or to anyone else invariably makes the patient feel unwanted, unreasonable, and rejected. It is far better to do what one can, to recognize that these personal emotional crises are affecting the health of patients, that they are medical problems, and that they belong to the province of medicine. Finally, there is urgent need for recognition of the fact that all patients who are motivated to medicine by their anxiety are as children who turn very naturally to their physicians, whom they endow with the same wisdom and good judgment that they always thought that their mother or father possessed.

Address of Dr. Edwin Crosby, Director, Joint Commission on Accreditation of Hospitals

The program of the Joint Commission on Accreditation of Hospitals is a truly fine device for assuring the public of good medical care, and, in my judgment, definitely a positive public relations asset. There is without doubt considerable lack of understanding of the Joint Commission at the national level,

especially how it operates through its board of commissioners, and I should like to review for you who it is that are on this board of commissioners. First of all, there are three physicians from the American College of Physicians, three surgeons from the American College of Surgeons, six representatives from the American Medical Association, including three from your own Board of Trustees, seven representatives of the American Hospital Association, three of whom are physicians, and one representative from the Canadian Medical Association. Thus, of 20 members of the board of commissioners of the Joint Commission, all but 4 are physicians and most are practicing medicine either in the United States or in Canada.

These men are dedicated to the purpose of the Joint Commission, and they do all that they can within their power to carry out this purpose. I should like to read to you now from the bylaws of the Joint Commission as to what the purpose of this Joint Commission is. It is "to conduct an inspection and accreditation program that will encourage physicians and hospitals of the United States and Canada voluntarily (1) to apply certain basic principles of organization and administration for efficient care of the patient; (2) to promote high quality of medical and hospital care in all its aspects in order to give patients the greatest benefits that medical science has to offer; and (3) to maintain the essential diagnostic and therapeutic services in the hospital through coordinated effort of the organized medical staff and the governing board of the hospital."

It is tremendously important that this purpose reach the grass roots of our country, that it reach the grass roots with the same story that we know at the national level. There is, to say the least, some confusion at the grass roots about the purposes of the Joint Commission. We have been called various things, including the "medical Pentagon in Chicago." And there is a definite misunderstanding, as evidenced by some of the letters we receive, about what we are doing for the benefit of patients, because we have been called "an aspect of medical socialism."

Your job, it seems to me, is to explain that the Joint Commission is one of the greatest bulwarks against socialism that medicine and the hospital professions have ever constructed. It assures the public that our primary concern is for the patient and the care he receives. As positive evidence of this, doctors in hospitals in this country are spending almost one half million dollars each year of their own funds to support this program voluntarily, so that the quality of medical care in hospitals can be raised on a voluntary and not a compulsory basis.

I would like to show you how I think you might tackle this at the local level, because I think that is where we need to tackle this problem. Let me give you just a brief case report of a recent request we received in our offices in Chicago, where there was evidence that there was no understanding at the local level.

An inquiry came from one of the wire services in Chicago that had originated in one of their offices in the South. The reporter asked me three questions: First of all, "What is this Joint Commission on Accreditation of Hospitals? I have never heard of it." Two, "Is the Joint Commission really going to disapprove 500 hospitals in 1953?" Three, "Are the standards of the Joint Commission tougher than the ones the American College of Surgeons has used for 35 years?" Let me answer the last two questions first. I was pleased to tell him that the records showed that we had upgraded from no accreditation twice as many hospitals as we had downgraded. Furthermore, the records showed so far for this year that there was a net increase of the number of hospitals in the United States and Canada that carried accreditation under the aegis of the Joint Commission. As far as the standards are concerned, they are the same standards that the College of Surgeons had, because we took them over lock, stock, and barrel, and there have only been two changes made in these standards to improve them.

"Well, this is a very fundamental thing," he said, "and I would like to write a story about it. How shall I write a positive story about the Joint Commission?" He went on to say, "I was a patient once in a hospital, and, as a patient with a pain in my stomach, my doctor sent me to the hospital. What can I expect in an accredited hospital that I wouldn't get maybe in a nonaccredited hospital?" I was amazed at the number of things which I was able to tell him that he might expect in an accredited hospital that he might not expect in a nonaccredited

hospital. Here they are: First of all, the medical staff is made up of qualified physicians, graduates of approved schools of medicine in the United States. These physicians are practicing medicine and surgery in the areas to which they are qualified by experience and training. Second, before you are operated on, you will have a history, a physical examination, the necessary laboratory work done, and a preoperative diagnosis made by your surgeon. If he feels that a consultation is necessary, he will call in a consultant. All of this, of course, unless there is a real emergency for you to be operated on immediately. Thirdly, when you go to the operating room, you know that you will be operated on by a qualified surgeon, as determined by the local medical staff. He will be assisted by a medical assistant, and you will be surrounded by all the necessary technical controls to assure you of sterilization of supplies.

After operation, you will be followed by the anesthesiologist in a recovery room, if the hospital is large enough. After that, you will be assisted by medicine's indispensable man, the pathologist. He will receive the tissue that was removed at operation, will examine it, and will make a report on it that will be included in your medical record. Then all of the patient's care in that hospital will be reviewed by the medical staff at least once a month by the various committees. The medical staff evaluates itself and governs itself subject to the ultimate authority of the board of trustees. In addition to this, there are many other things you might expect in an accredited hospital. You will find that there are nurses. In some hospitals, there are no nurses. You will find that there are qualified technicians, that you are being taken care of in a modern plant. If it is not modern, you will be assured that there are all the precautions that are necessary to be taken to prevent fire. The reporter's answer to me was this, "All this and heaven too?" I said, "Yes, that is what you can expect in an accredited hospital."

This is something that I am proud of. I think that every doctor in the United States and Canada can and should be just as proud as I of the accreditation program. It is important to tell this story. The medical profession is working with the hospitals of this country. They are paying from their own pockets, from their own funds, to assure the public that they will receive the best quality of medical care available. All hospitals, large and small, with accreditation have the stamp of a third party that the standards of adequate medical care have been met.

Let me quote from something the charter chairman of our commission once said. Dr. Gunnar Gundersen, an A. M. A. Trustee, in talking of the Joint Commission, said: "It is a voluntary movement, representing the best thinking and the best inspiration of five of the most powerful groups in the world dealing with health. As our duties [those of the board of the commissioners] are discharged well, the benefits to mankind through our profession, through our hospitals, and for our civilization are on record." This is from the national level.

Address of Dr. Durward Blakey, Secretary-Treasurer, Clarksdale and Six Counties Medical Society, Clarksdale, Miss.

When we say that a program works, we must have firmly in mind what the system is and what it is expected to do. In the instance before us today, we are concerned with the public relations value of a working audit system, and, most assuredly, our audit system could not be working unless it did produce bountiful results in the field of public relations. In a sense, public relations and an audit system are inseparable.

It is impossible to separate completely the activities of a hospital and be able to say, for example, that the management is poor but the public relations department is excellent. The multitude of operations contributing to the success of the hospital all exert their effects, one upon the other, to produce a composite whole. In this respect, public relations must be considered and actually is an attitude.

There is one attitude in every hospital, and it is reflected by the employees, the management, the medical staff, and the auxiliary. This attitude is rapidly communicated to the new patient as well as to the entire community, and it is this attitude that constitutes our most important public relations asset. Therefore, when we say that our audit system works, we are, in fact, saying that the doctors of our community have ac-

cepted a leading role and assumed the responsibility, which can only be theirs, of proving to the employees, management, auxiliary, and public that the best possible medical care is guaranteed to the patient. These persons cannot be fooled. They are satisfied in their own minds whether this situation actually exists or is merely said to exist. If they are convinced it exists, their good opinions come back to you many times from their friends, neighbors, and acquaintances. This person-to-person communication is our most important field of public relations.

It is impossible to assume that good management can offset a poor or absent medical policy. There is no means whereby a hospital can render the best possible medical care unless the medical staff has adopted and strictly enforced a plan whereby every doctor's ability is constantly checked and his privileges assigned accordingly. A medical audit system represents an ideal. The success of any venture depends on the effort expended in its behalf by its proponents. We must always be sure that the idea or service we have to sell is what the public wants. At the same time, it is important to know that the majority of those involved in the venture are sincere in voting for it rather than paying lip service merely because they are afraid to be on record as opposed to it.

When our doctors first met to draw up the bylaws, rules, and regulations of our hospital, it was evident that the mass of work involved did not appeal to anyone. There was no more than the usual incentive every doctor has to be a part of something better than we have had before. There may have been a feeling that whatever was drawn would be loosely enforced, and this might well have been the case. Patients in our area have long been able to keep their own medical counsel, being, as they are, in close proximity to a leading medical center. Referral of patients for consultation locally was about as low as it could be, thus contributing to an increase in cost to the patient, since they did have to leave town for consultations. Such a condition over a period of time could only result in lowering public confidence in the profession.

Under our new bylaws, it was evident from the beginning that consultations were the one means of keeping the audit committee satisfied. Many meetings were devoted to drawing rules covering required consultations. Gynecologic surgery without consultation was eliminated. Writing consultations whether required or not has become almost routine. An early high cesarean section rate was fully audited and, though shown to be justified, served full notice that the staff would live by its bylaws. The pathologist was called into conference with the tissue committee and invited to give strict interpretations of all tissues submitted to him.

By now, it had become obvious that our doctors were responding to the incentive offered by a system of which they were a part and that they approved a searching scrutiny of their work by their colleagues. If there were any who did not fully approve, they would have found it necessary to comply because of the pressure characteristics of the audit system. We felt justified, therefore, in releasing some public information to the press on our system.

It had been rumored for some time that a patient could hardly be mistreated in the new hospital, but after the first major feature written in our local paper, the profession as well as the hospital not only gained a wealth of favorable comment but obviously assumed a place and a stature in the eyes of the community.

It is well to pause at this point to reaffirm what has already been indicated. Public relations and publicity are not the same, though good publicity adds a great deal to the public's opinion of the hospital, thus enhancing the public relations. Feature articles in the press and over the radio are extremely important in crystallizing public opinion, but, no matter what is doled out to the reporters, it is practically valueless unless it is borne out by the actions of all those concerned in the operation of the hospital.

Public Relations, as we are prone to think of it, is something tangible. We should forget this idea. In its simplest sense, public relations is nothing more than the enthusiastic devotion to duty of all those concerned in the operation of the hospital, coupled with a sense of something worth while being accomplished and a feeling of oneness or *esprit-de-corps* between all those persons actively working together. This feeling can be

generated by the medical staff as by no other group in the institution. The effect of firm medical staff government on the nursing and maintenance personnel is of the utmost importance and of incalculable benefit. The institution is the place where the doctors work. If they are slipshod in managing themselves, it will inevitably be reflected by less than the best possible in patient care and, therefore, in poor public relations.

There are many opportunities for good public relations growing out of staff government. The crux of good staff government is the audit system. The active audit of the records, the review of patients in the hospital, analysis of tissue reports, operative indices, morbidity, mortality, etc., are of no value unless everyone realizes that a strict accounting of derelictions will be had. There is considerable overlapping in the work of the various committees and service reports necessary to proper functioning of the audit system. This double check almost completely eliminates the chance of internal politics, which is of prime importance.

After the publication of our first feature on staff government, it soon became obvious to the officers of the staff that at least the vast majority of the doctors favored interpretation of the bylaws, rules, and regulations in the strictest sense. A new feature dealing entirely with the audit system was prepared by a reporter invited for the purpose. This article aroused a flood of favorable comment, not only at home but throughout the state. It is primarily because of this article that this paper is being presented here today. Though it might appear that the development of our public relations program was planned, this is not the case. We have tried to develop a good public relations program, but what we have done has been a natural outgrowth of the audit program.

We should never forget our controlling body. The success or failure of any hospital depends on its medical staff, but a good sound policy in staff government can quickly elicit the solid support of the Trustees. These persons are forgotten all too often, but they never forget us. Good liaison pays untold dividends. There are many other groups intimately concerned with the functioning of the hospital though not primarily a part of it. These include, among others, our volunteer health agencies, official health agencies, newspaper and radio personnel, ministers and church groups, and civic clubs. Representatives of these groups can find the pulse of the hospital very quickly and are attuned to the attitude of the operating personnel. The hospital auxiliary will feel the effects of medical policy in morale of the hospital. If the auxiliary does not pick it up, you may be sure there is little to pick up.

It is not enough to give good medical care—the patient must be told he is getting it and the fact proved. For example, there will seldom, if ever, be a complaint from a patient for the charge of a routine admission roentgenogram if he is given a small folder outlining the reasons for the procedure. Small brochures on the purpose and scope of the hospital given to the patient are well worth while.

Morale, it has been said, is a lot of little things. In hospital work, one of these can be an active audit program. If it is effective, the medical care system will be effective, and the doctors' morale will be reflected by the hospital personnel and the auxiliary. Call it what you will, morale or *esprit-de-corps*, the result is good patient care. When this state of affairs is reached, the hospital acquires the human element that is the ultimate in good public relations.

At the time of this writing and, growing out of our staff government, we have evolved a community blood bank, poliomyelitis center, doctor locator service, emergency call system, and grievance committee. In addition, we have begun a memorial medical library. The opportunities offered for publicity and enhanced public opinion are evident. Our doctors are taking the problem of individual public relations back to their offices, to the civic clubs, and to their routine lives as citizens of the community. The far-reaching effects of the audit system pay ever-increasing dividends.

Our hospital has 100 beds and was built under the Hill-Burton plan. It is not the only hospital in the community. At this writing, it has been open and receiving patients only 11 months. It would seem impossible that so much could be accomplished in such a short period, yet it has. While comparable hospitals in the mid-South have had about 30% occupancy

during the first year, ours has had nearly 38% so far, and, on the present basis, it will be higher when the year has ended. We feel this margin of occupancy is due in its entirety to our public relations program and that it cannot fail to increase as time goes on. We know we are on the right track. We know we have what the public wants and is entitled to receive—the best medical care possible. We know the public is learning this fact and growing to appreciate it. We know that we have worked long and hard over our program of staff government. We know we are better doctors because of it, and we know the patient is the sole beneficiary.

When our chief of staff was elected, in his acceptance, he stated that his policy would always be "equal rights to all—special privileges to none." He has repeated it on every possible occasion. In our hospital, it has come to mean good medical care—the best available—to everyone. We have come far but the limit is not in sight.

In summary, the public relations values of an audit system may be divided into three parts, one of which we can assign to the public, one to the physicians of the staff, and one to the hospital itself.

To the public, the audit system (1) builds confidence and trust in the doctors and the hospital, and (2) assures the patient of treatment which is completely competent on the highest ethical plane. To the hospital, the audit system (1) assures competent and complete medical records; (2) finds and points the way to correction of administrative deficiencies; (3) materially advances the hospital's efforts toward accreditation; and (4) fosters close liaison and promotes understanding between the medical staff and the trustees. To the physician, the audit system (1) is the best argument and the best reason for exclusion of external control of the practice of medicine; (2) means that privileges are assigned solely on the basis of professional ability and ethical practices; (3) promotes competent practice from two standpoints: *a.* incentive, *b.* pressure; and (4) eliminates, insofar as possible, both internal and external politics on the staff and, coupled with a capable and conscientious chief of staff, assures impartiality and fairness to all members.

Address of Dr. David W. McCarty, Chairman of the Board of Supervisors of the Colorado State Medical Society

I represent before this meeting a type of state board organized for self-discipline which was pioneered by the Colorado Medical Society, which has been highly successful during the six years of its existence, and of which the society is justly proud. The chairman has asked that my part in this panel be to describe to you, not so much the mechanics of a state grievance committee but the realistic operation of such a committee, set up to perform definite services and having been given the authority by which those services can be accomplished. To describe the action of such a committee is like trying to tell a medical student what psychotherapy is; it simply cannot be done adequately without being able to demonstrate the board in session.

Departing for a moment from the realistic approach, it seems to me necessary that we first establish the position of the state grievance committee. In the first place it should not be labeled a "grievance committee," because, from the start, it should have duties beyond those of simply investigating complaints. It should be empowered to initiate its own investigations concerning professional conduct. It should be able to prosecute serious offenses before a judicial body. From the hearing of complaints, their investigation, and their prosecution, the board becomes a repository of a great deal of information that would be lost if it were not to carry on an educational program in proper professional conduct, in better patient-doctor and doctor-doctor relationships, and, finally, in formulating good public relations for the medical profession.

In setting up a committee on professional conduct, it seems to me that at least four conditions should be fulfilled. It should have: 1. The approval and respect of the members of the state society and the confidence of the public. 2. To function honestly and impartially, it should be an elective body—certainly not honorary—elected by the house of delegates on nomination of the component societies. In our set-up, the board is elected by the house of delegates, but the nominations are made from the component societies with a geographical dis-

tribution. There are 12 areas, 6 of which would nominate a member of the board each year. 3. Then the meetings must be held in such a manner that there is no breach of confidence. 4. It should be provided the authority necessary to carry out complete investigations. If the board is to have authority necessary to carry out complete investigations, it must have the power to compel the attendance of the members of the society in order that they can inform the board. It can only invite non-members, but the members of the society who refuse to appear can be cited for contempt before our board of councilors.

The Colorado board of supervisors has no power to try a member, and it has no power to impose discipline. It is set up as a division of the judiciary department and can prosecute charges before the board of councilors, which has the disciplinary power, the board of medical examiners, or a criminal court.

Unless the board has publicity, new members entering the state society each year will be unaware of its functions, and older members will become forgetful of its functions. It is important to keep both of these groups informed, and the laity also must be informed of the existence of such a board. Our board averages around 55 cases per year. I say "cases" instead of complaints, because some are from information and are not complaints. The only way that I know that I could present a realistic picture of the operation of our board is to try to give you some hypothetical cases embodying some of the frequently occurring or disturbing problems, with you as the grand jury.

Complaints reach the board via a number of routes, namely, over the telephone to the secretary of the society, by letter from patients, from other agencies, attorneys, the Blue Shield, the A. M. A. Over-charging still comprises about 50% of the complaints received by our board. It formerly was 70%, and we are glad that it has remained at 50% for the last three or four years.

Here is a typical case: The patient went to a doctor with what he felt to be a minor complaint. He was given an examination. He had subsequent treatment, after which he received a bill for \$50. The patient felt the bill was too high. He said the treatment did no good anyway. He did not pay his bill. He has never discussed it with the doctor. Now the bill is being turned over to a collection agency.

Our procedure is somewhat like this: A letter is sent to the complainant stating that an investigation is under way, frequently mentioning the fact that we meet only once a month and it may be some time before he has a complete report. If indicated, the complainant is advised to appear in person before the board. Then a letter goes to the doctor stating the nature of the complaint and requesting information regarding the case. If it is felt necessary, he is asked to appear before the next meeting of the board. In a case such as I have just described, a request is made for an itemized bill. We frequently ask the doctor in the letter if he wishes to call in the patient and attempt to make some amicable adjustment himself. Frequently, our letter to the doctor is his first information that there has been a complaint registered against him. If the bill is already in the hands of the collector, we have sometimes been successful in asking the doctor to request delaying action pending our investigation. Sometimes, we have asked the collector ourselves if he would delay the action.

Now, what can be learned from a case like this? In the first place, the itemized bill from the doctor may show the fee to have been entirely commensurate with services rendered, the type of treatment, and the type of studies. If the doctor had rendered an itemized bill in the first place, or had taken three minutes to explain the need for certain examinations and the cost of the medication and treatment, the complaint would never have arisen. In such a case, the patient is so advised and told that his bill should be paid.

Another possibility is that the patient is a "deadbeat." He has made no attempt to pay the bill. He has made no attempt to discuss it with the doctor. He may be complaining now only because legal steps are taken to collect it. When the patient complains that the treatment did no good anyway, it is the feeling of our board that the doctor would do well to become his own public relations officer and reconsider his fee in view of the results obtained. Recently, we have had two complaints

of patients who have employed an obstetrician and, as sometimes happens, the baby was born before the arrival of the obstetrician. We took this matter up with our state society of obstetricians, and they maintain that, when they accept a case, if the birth is precipitate and they are unable to get there in time, they still have assumed full responsibility of the case and they are, therefore, justified in collecting their full fee. The patients do not agree.

We feel that the most serious charge that reaches our board is that of neglect of a patient. Here is a typical case: A pathetic widow appears before the board. Her husband was a retired school teacher who had been able to do some substitution work. The family doctor had become concerned about his condition sufficiently that he had asked an internist to hospitalize the man for study because he felt it could not be done on an outpatient basis. The patient went to the hospital at 3 p. m. He had not yet been seen by the doctor at 7:30, and his wife called the physician's home. The doctor examined the patient at about 8 p. m., felt that his condition was not serious, and so informed the wife. The patient had a bad night and was not seen the next morning. In the middle of the afternoon, it was necessary for the house physician to attend the patient. By evening, it was necessary to call in a urologist for catheterization, which was difficult and required an anesthetic. The wife then talked to the physician in charge, and the patient seemed to be doing all right, but, by 1 o'clock in the morning, he had convulsions, and he was dead at the time the physician arrived at the hospital.

Now, on the surface, this would sound like a serious complaint, and it certainly sounds as if there were neglect of the patient involved, so the physician was asked to appear before the board. His story was considerably different from that of the widow. The nurse had informed him at his office of the arrival of the patient at the hospital, stating that his condition seemed good. His usual practice was to go to the hospital before dinner, but in this case he had his dinner and then went to the hospital. He checked the man and felt his condition was relatively good, but, on his arrival at the hospital the next morning, he found that the man had considerably more severe congestive failure than he had realized, and he discussed it with the house physician and started administration of a mercurial diuretic, telling the house physician that he might run into trouble because of urinary difficulties. The house physician was able to catheterize the man after his diuresis started with considerable difficulty, and by evening it was necessary for a urologist to see the man. He required an anesthetic for the insertion of a retention catheter. The patient responded, but at 1:30 went into convulsions and died within 10 minutes.

Certainly in such a case, there is no evidence of gross neglect of the patient. The wife was not aware of a good many of the doctor's visits to her husband. We do think, however, that the doctor made some mistakes. He certainly should have seen the patient before six hours had elapsed. He made a common mistake of telling the family that the patient's condition was good. In this case, the widow had gone over the course of events with her son and with her attorney because it was felt that her husband was in relatively good condition, and yet in 36 hours he was dead.

Someone has asked me how much should be included in a letter that states the final action of a mediation committee. In a case like this, a letter to the widow will state that we had investigated the case, the hospital records were checked, and witnesses were questioned, and it was the feeling of the board that there was no neglect, that her husband had received adequate medical treatment. In a case like this, certainly more detailed information will have to go either to the son or to the attorney.

One of our problems at present, and certainly a problem that would concern a meeting of this type, is that of individual publicity that smacks of advertising. The Code of Medical Ethics states that solicitation of patients, either directly or indirectly, is not ethical. Colleagues are particularly critical when the name of some doctor appears too frequently in the press, and the distinction between what is ethical and what is not ethical becomes very fine.

Here is a case of a clinic that made an announcement in the papers of its opening. The group actually consisted of 4 full-time members, 3 part-time doctors, but the announcement also listed 14 of the leading consulting specialists who had agreed to see patients referred by the clinic, but in their own offices and rendering their own bills.

The newspapers felt that the opening of the clinic was newsworthy. They called it a business-type article, and they played it up to a three-column spread with pictures, and they captioned it, "Mayo Type Clinic Is Opened." The board investigation revealed that the information had been requested by the papers and it had been gladly given and in much detail by the clinic. The idea of the publicity had not been cleared with any public relations committee, and the information furnished by the doctors was not in good taste and was not entirely truthful.

A case similar to the one I have cited appeared before the Colorado State Medical Society's Board of Supervisors and required four months of investigation and the testimony of 36 witnesses. It required the filing of charges with the board of councilors and ended with the successful prosecution of the charges before that board.

I have cited this last type of case for two reasons. I feel that it shows that our board of supervisors is a mediation committee with teeth, and this type of case concerned with personal publicity that smacks of solicitation of patients has so many ramifications that it should be a good one to discuss at a meeting such as this devoted to public relations.

Address of Dr. Henry V. Weinert, Chairman, Tissue Committee, St. Mary's Hospital, Passaic, N. J.

To orient and evaluate the population and bed capacities of the geographical areas that the members of this conference reside in with ours, I would like to specify that there are available in Passaic, N. J., three hospitals: St. Mary's with 192 beds, the Passaic General with 234 beds, and the Beth Israel with 60 beds, all combined, serving an area with a population of 275,000.

In 1946, St. Mary's Hospital was assigned a new Administrator, Sister Eileen Teresa. After completing her studies in nursing, she served as an assistant to the previous administrator. In these capacities, she came into direct contact with patients and public, and thus a fund of information and facts concerning existing surgical practices was made available to her. It was, therefore, not difficult for her to evaluate situations and to differentiate proper from improper practices.

Correction of irregularities was decided on and instituted. After lesser improprieties were corrected, the major blemishes of the profession, which were then just beginning to receive unfavorable publicity, were attacked. Among these were the practices of fee splitting, ghost surgery, and unnecessary surgery. Sister Eileen decided that this institution would not be a workshop for physicians who did not respect the dignity of the hospital or consider the economic and personal inconveniences of the public when indulging in these abuses. The lack of a hospital in which to perform surgery on poorly workedup cases, or patients with questionable need for surgery will of necessity eliminate most of these unethical practices.

Fee splitting was managed by insistence on the method devised and recommended by the College of Surgeons. Any additional safeguard in the control of this very difficult problem, we felt, would be helpful. All physicians were therefore graded so that there could not be no doubt as to which operative procedures they were capable of performing or merely assisting in. The recording of the surgeon and assistants on the operative record, according to their grading by the administration, thus forms the basis on which billing for services according to the College of Surgeons rules are made.

The remaining two evils, ghost surgery and unnecessary surgery, required the setting up of legislation, i. e., rules, inspection, and enforcement, as is familiarly done to combat irregularities. A strict set of rules was formulated. Any hospital planning a tissue committee should first formulate this legislation as a basic necessity. Without surgical control rules, the tissue committee could only review cases of absent or minimal

pathology which would, indeed, be a poor surgical audit and certainly would not prevent ghost or unnecessary surgery. The tissue committee then becomes the inspection or policing agency, and its findings can be transmitted to properly designated authority for correction of irregularities.

The rules so adopted required, among other details, compulsory preoperative consultation in such procedures as dilatation and curettage, hysterectomy, uterine suspensions, lysis of adhesions, herniation of intervertebral disks, and all procedures specified in the Catholic Code of Ethics. The rules further made it mandatory that the physician, to be recorded as the operating surgeon in the case, personally interview and examine the patient and prescribe treatment personally. Strict adherence to these rules and verification by the Administration that they are fulfilled must lead to a complete eradication of ghost surgery.

Having completed our rules program, we embarked on the method of inspection, that is, auditing. A communication addressed to Dr. Malcolm MacEachern requesting information on this problem brought the following response, dated April 25, 1949: "The American College of Surgeons does not have a bulletin on the subject, although we hope to have one in the near future. The whole idea and plan of a tissue committee is fairly new."

The committee proceeded to devise its own plan. It goes far beyond the review of cases in which the pathologist simply records the removal of normal or minimal pathological areas. It includes also a review of all appendectomies, all reproductive organ surgery, all emergencies, all cases in which definitive surgery was not accomplished, all cases in which there is a marked disparity between preoperative and postoperative diagnosis. By this method, no questionable or unnecessary surgery can escape review and audit, and the compulsion of correction by the erring physician must lead to the abolition of unnecessary surgery.

In November, 1949, the committee held its first audit. Monthly audits have been held since. The information obtained was so instructive and illuminating that I was urged to publish the facts. This was done, and on Nov. 8, 1952, THE JOURNAL published the article entitled "Effectiveness of Hospital Tissue Committee in Raising Surgical Standards," which outlines in detail the procedure to be followed in organizing such a committee. We are reviewing in detail and auditing approximately 1,400 charts yearly.

Prior to committee audit, we found appendectomies averaged 28% of the total surgical cases, of which 20% were found to have minimal or no pathology. This has been reduced, and now appendectomies average 8 to 9% of the total surgery, with 5% of these receiving adverse audit. Most spectacular results were obtained in the category of emergency surgery. Early in our study, we found 29% of emergency surgery lacked pathology or need of surgery. This rapidly fell to 10%, and this year in emergency surgery, averaging 40 cases a month, it is most unusual to find months in which more than one or two cases are recorded unfavorably, which averages 3 to 5%. No longer do we hear in the hospital the complaints and display of anger of the conscientious physician who, while observing a case carefully, or not recommending surgery, found emergency surgery was performed with the removal of a normal organ.

Because of strict consultation demands, procedures such as uterine suspension, lysis of adhesions, and hysterectomies for functional bleeding with no pathology have become a rarity. The greatest improvement occurred after the first summons of physicians for review and censure. To fail to review and insist on improvement from those found derelict would mean that the tissue committee would only amass a great deal of useless paper work.

Good public relations for the medical profession begins and ends with the individual physician. The topic of illness, which eventually involves the physician and, often the hospital, is, without doubt, high on the agenda of family and friendly gatherings. It is not surprising, then, that isolated irregularities and distrusts multiply rapidly, leading to a lessening of respect and trust of the entire profession. It is, therefore, regretful that I must report that we did not obtain the cooperation of the physicians at the outset in this most essential project

for bettering public relations. We persisted in our labors and submitted unbiased, truthful reports, instead of white-washed opinions that discouragement could well have initiated. Our forte was complete cooperation of the governing board, without which it is useless to function.

Gradually, the attitude of the physicians improved. We were aided by many factors. The publication of the article brought congratulatory and complimentary replies from nationally prominent physicians, welfare workers, educational institutions, and hospitals. To remove the awe of secrecy and questionable righteousness of the committee, we instituted a program in which two noncommittee member physicians are permitted to sit in at deliberations, at their own request, as guest observers. These observers are our greatest boosters. The director of surgery and president of the medical staff are invited to each meeting.

The announcement to the staff that the Joint Commission on Accreditation of Hospitals will require professional auditing for accreditation broke the final barrier of resistance. Today, we have excellent cooperation by the physicians, with an evident atmosphere of a desire to maintain individual acceptable audit status. So we can conclude that, properly encouraged, physicians will permit self-examination and correction, which is excellent prophylactic therapy for future adverse publicity and another step to good public relations.

THE PHYSICIAN'S FEDERAL INCOME TAX

Federal income taxpayers on a calendar year basis must on or before March 15 do two things: 1. They must file their final returns for the year 1953. 2. They must file a declaration of estimated tax for 1954.

Copies of appropriate forms have already been distributed to prior taxpayers, together with a small booklet which presents the general requirements of the law. Physicians who are for the first time subject to the requirements of the federal income tax law may obtain the necessary forms from the office of the Director of Internal Revenue having jurisdiction.

GROSS INCOME

A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, assuming that the return is on a cash receipts and disbursements basis, plus such money as he has received from investments and from other sources.

If a physician receives a salary as compensation for services rendered and in addition thereto living quarters or meals, the value to the physician of the quarters and meals so furnished ordinarily constitutes income subject to tax. If, however, living quarters or meals are furnished for the convenience of the employer, the value thereof need not be computed and added to the compensation otherwise received by the physician unless such quarters and meals are furnished as a part of compensation.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. As far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in such dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a

physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service, and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs, and chemicals. Professional journals may be classified as supplies and the subscription price deducted. Amounts currently expended for books, furniture, and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted, but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment such as has been described, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical, and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment, and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation deductions taken year by year over its useful life, as described later.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal, or average rates of depreciation, the following percentages have been suggested: automobiles, 25% a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments, and diagnostic apparatus, 10% a year; office furniture, 5% a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the average value of the article at the end of its useful life, shall not be greater than its purchase price. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in each case.

Dues.—Dues paid to societies of strictly professional nature are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are generally held to constitute personal expenses and as such are not deductible. If, however, membership in social organizations, such as a country club, is maintained both for personal and professional or business purposes and if evidence can be produced to substantiate the claim that a part of the expenses of such membership was incurred for business purposes, then it would seem that these latter expenses would be deductible. Further discussion of this particular aspect of the federal law will be found in a subsequent paragraph dealing with the deductibility of entertainment expenses.

Postgraduate Study.—The U. S. Court of Appeals, Second Circuit, in the case of *Coughlin v. Commissioner of Internal Revenue* (203 F. (2d) 307) held, on April 14, 1953, that the taxpayer, a lawyer, could deduct for federal income tax purposes expenses incurred by him in attending a postgraduate course on taxation. The government did not appeal this de-

cision, and the time within which an appeal could have been effected expired 90 days after the decision date. Tax counsel advises:

"The decision of the Circuit Court is not confined to lawyers. It equally applies to the practicing physician who attends postgraduate courses which are similarly designed to refresh his medical knowledge and to keep him informed of recent medical developments. Therefore, in computing his federal income tax a doctor may deduct the expenses of his attendance, namely, the cost of his tuition, travel, board, and lodging.

"However, it is by no means clear that the court's decision covers attendance at postgraduate courses which are designed to advance the doctor into a new area of his profession. For example, there is a good deal of doubt whether a general practitioner may deduct his expenses in attending a postgraduate course in order to specialize in surgery. But this would be the unusual case. Normally, a doctor attends a postgraduate course relevant to the field in which he is practicing and all the expenses which he so incurs are deductible by him."

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals, and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Entertainment Expenses.—The deductibility of entertainment expenses, when incurred for business purposes, has been upheld, as applied to an actor, in the case of *Blakmer v. Commissioner*, 70 F. (2d) 255. In the case of *Jacobson*, 6 T.C. 1048, the taxpayer was allowed a deduction of expenses incurred for entertaining clients and employees of his law firm. The deductibility of such expenses by an attorney came before the U. S. Tax Court in the case of *Clyde A. Armstrong v. Commissioner*, decided Aug. 29, 1947, 6 TCM 997. In a memorandum opinion rendered by Judge Oppen, this was said:

Taxpayer, a Pittsburgh attorney, became a member of the University Club and the Duquesne Club in order to have available facilities for the entertainment of his clients; his purpose in joining the clubs was not particularly to make contacts productive of new business. In 1942, 1943, and 1944 the Commissioner disallowed deductions representing club dues, but allowed 50% of the house bills incurred by taxpayer at each of the clubs during those years. The court finds that taxpayer used the club facilities not less than 50% of the time for entertaining clients and other purposes incident to the practice of his profession, and allows the deduction of dues to that extent.

In the December, 1948, issue of the *Medical Annals of the District of Columbia*, page 697, there was published correspondence that had passed between the secretary of the Medical Society of the District of Columbia and the Internal Revenue Agent in the Baltimore Division, Treasury Department, in which the latter stated that if entertainment expenses incurred by a physician have a direct relation to the production of income, and can be supported by the taxpayer, they will be taken into consideration in determining his net taxable income.

Directors of Internal Revenue in several jurisdictions have questioned the right of physicians to deduct entertainment expenses, contending that it is unethical for a physician to make expenditures of this character. The Judicial Council of the Association, in its report to the House of Delegates at the Los Angeles, 1951, meeting said in part:

"The Council does not consider such expenditures as *per se* unethical. There are circumstances under which a professional obligation may rest on a physician to entertain other physicians. It is a usual and necessary concomitant of the practice of medicine. It is certainly not an uncommon practice and is recognized by the profession generally as entirely proper and justifiable." This report was approved by the House of Delegates (*J. A. M. A.* 147:1686, Dec. 22, 1951).

Expenses Incurred by Members of the Auxiliary.—Two applications have been filed with the Office of the Commissioner of Internal Revenue, one on behalf of the American Medical Association and one on behalf of the Woman's Auxiliary, asking for a ruling on the deductibility of expenses incurred by members of the Auxiliary in attending official meetings. In each case the requested ruling was withheld for the principal reason that neither the Association nor the Auxiliary was a taxpayer whose tax liability would be affected by the ruling requested. In response to the petition of the Auxiliary, however, a communication from the Office of the Commissioner stated as follows:

"Since the question of whether the expenses incurred by the members of the Auxiliary in attending the conventions and other meetings are deductible under section 23(a)(1)(A) of the Internal Revenue Code depends upon the facts in each particular case, a general ruling applicable to all members of the Auxiliary may not be made.

"A taxpayer claiming the benefit of the deduction of such expenses must attach to his return a statement showing (1) the nature of the business in which engaged; (2) the number of days away from home during the taxable year on account of business; (3) the total amount of expenses incident to meals and lodging while absent from home on business during the taxable year; and (4) the total amount of other expenses incident to travel claimed as a deduction.

"Claims for deduction of such expenses must be substantiated, when required by the Commissioner, by evidence showing in detail the amount and nature of the expenses."

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeur's wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is possessed by the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood. What has been said in respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

Surgical Uniforms.—Amounts expended by surgeons for the purchase and maintenance of distinctive types of uniforms which are not adaptable to ordinary wear and which are required to be worn while on duty are deductible as ordinary and necessary business expenses.

MISCELLANEOUS

Contributions to Charitable Organizations.—For detailed information with respect to the deductibility of charitable contributions generally, physicians should consult the official return blank or obtain information from the directors of internal revenue or from other reliable sources. An individual taxpayer can deduct such contributions only to the extent that they do not exceed 20% of his adjusted gross income. The physician may not deduct as a charitable contribution the value of services rendered an organization operated for charitable purposes. It has been held that blood donated by a person to a charitable institution for a transfusion, or to a blood bank, is not property and the fair market value of the blood is not deductible as a charitable contribution.

Bad Debts.—Physicians who make their returns on a cash receipts and disbursements basis, as most physicians do, cannot claim deductions for bad debts.

Taxes.—Taxes generally, either federal or state, are deductible by the person on whom they are imposed by law. Both real and personal property taxes are deductible; but so-called taxes, more properly assessments, paid for local benefits, such as street, sidewalk, and other like improvements, imposed because of and measured by some benefit inuring directly to the property against which the assessment is levied, do not constitute an allowable deduction from gross income. Physicians may deduct state gasoline taxes and state sales taxes. In some states sales taxes are imposed on the seller, but if they are passed on to the buyer the latter may deduct them.

State income and use taxes are deductible; federal income taxes are not. Federal import, excise, or stamp taxes are deductible only to the extent that they are attributable to business activities. State automobile license fees are deductible. If a state or local fee is imposed for regulatory purposes, and not to raise revenue, the fee may not ordinarily be deducted as a tax. If such fees, however, are classifiable as a business expense they are deductible as such. Annual registration fees imposed on physicians probably come within the category of regulatory fees and should be deducted as a business ex-

pense rather than as taxes. Local and state occupational taxes imposed on physicians are deductible either as taxes or as a business expense, depending on the purpose for which the tax is imposed.

The excise taxes imposed on employers by section 804, title VIII, and section 901, title IX, of the Social Security Act, commonly referred to as old age and unemployment benefit taxes, are deductible annually by employers in computing net income for federal income tax purposes. If the taxpayer's return is made on a cash basis, as are the returns of practically all physicians, the taxes are deductible for the year in which they are actually paid. If the return is made on an accrual basis, the taxes are deductible for the year in which they accrue, irrespective of when they are actually paid. Employees, including physicians whose employment brings them within that category, may not deduct the tax imposed on them by section 801, title VIII, of the Social Security Act, generally referred to as the old age benefits tax. If, however, the employer assumes payment of the employee's tax and does not withhold the amount of the tax from the employee's wages, the amount of the tax so assumed may be deducted by the employer, not as a tax paid but as an ordinary business expense.

Medical Expense.—A taxpayer may deduct amounts in excess of 5% of adjusted gross income expended for medical, dental and hospital expense for himself, his spouse or a dependent, not compensated for by insurance or otherwise, including amounts paid for health and accident insurance, according to a prescribed formula. This 5% limitation does not apply with respect to medical expenses for the care of the taxpayer or his spouse if either has reached the age of 65 before the close of the year. The law limits the deduction to a maximum of (a) \$1,250 if the taxpayer claims only one exemption; (b) \$2,500 if the taxpayer is a single person or if married and filing a separate return and claims more than one exemption; (c) \$2,500 if the taxpayers are married and file a joint return and claim two exemptions, \$3,750 if three exemptions are claimed and \$5,000 if four or more exemptions are claimed. It has been held that the cost of installing a stair seat elevator in a home, necessitated by a heart condition, does not constitute a deductible medical expense. Fees paid to qualified psychologists for therapeutic treatment are deductible as medical expenses. If a practical nurse is hired on the advice of a taxpayer's physician, the nurse residing in the taxpayer's home, her compensation is attributable to medical care and not to personal services. According to a ruling of the Bureau of Internal Revenue that part of the premium of a health and accident insurance policy that purchases insurance providing reimbursement to the insured for loss of earnings is not deductible as a medical expense.

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expense incurred in the defense of a suit for malpractice is deductible as a business expense.

MEDICAL NEWS

ARKANSAS

Medicine and Crime Detection.—A dinner meeting for lawyers, physicians, F. B. I. men, police officers, judges, sheriffs, coroners, prosecuting attorneys, and others interested will be held Feb. 9, 6:30 p. m., at the Camden Hotel in Camden (plate charge, \$3). The meeting, which is sponsored by Dr. R. B. Robins of Camden, will be addressed by Dr. Charles P. Larson, associate clinical professor of pathology, University of Washington School of Medicine, Seattle, who will present an illustrated lecture "Crime Detection by Scientific Medicine." Dr. Larson is chairman of the committee on forensic pathology for the College of American Pathologists and during World War II was chief pathologist for the War Crimes Commission in Southern Germany. He is also director of the Tacoma Police Department Laboratory and pathologist for the Tacoma General Hospital.

ILLINOIS

Illinois Appoints Medical Dean.—Dr. Granville A. Bennett, professor of pathology, University of Illinois College of Medicine, Chicago, has been appointed dean of the college and will assume those duties in the spring. Dr. Roger A. Harvey, who has been acting dean since Jan. 1, 1953, will return full-time to his position as professor of radiology and head of the department, and radiologist in chief of the Research and Educational Hospitals, for which Dr. Bennett presently serves as pathologist in chief. Dr. Bennett, who has been head of the department of pathology since 1944, is chief editor of the *A. M. A. Archives of Pathology*. He is consultant to the Armed Forces Institute of Pathology, consultant in pathology to La Rabida Jackson Park Sanitarium, Chicago, a member of the council of the American Association of Pathologists and Bacteriologists, and a member of the executive committee of the Institute of Medical Education. Before coming to Chicago in 1944, he was head of the department of pathology and bacteriology at Tulane University of Louisiana School of Medicine, New Orleans, and taught at Harvard Medical School, Boston, from 1927 to 1943. Dr. Bennett's research interests have been concerned chiefly with diseases of the skeletal system. He is a past president of the Chicago Pathological Society, the Illinois Society of Pathologists, the American Association of Medical Museums, and the New England Pathological Society and is a fellow of the College of American Pathologists.

Chicago

Course in Bronchoesophagology.—This course will be given by the University of Illinois College of Medicine March 22 to April 3 under the direction of Dr. Paul H. Holinger. Registrants should contact the department of otolaryngology, University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12.

Meeting of Neurosurgeons.—The Interurban Neurosurgical Society will present the following program, which will be heard by invitation only, at 9 a. m. Feb. 13 at the University Club of Chicago:

- Anterior Choroïdal Artery Occlusion in Parkinsonism, Irving S. Cooper, Bronxville, N. Y.
- Pressures in the Cervical Carotid and Intracranial Arteries, William H. Sweet, Boston.
- Concept of Temporal Lobe Epilepsy, Herbert H. Jasper, Montreal, Canada.
- Craniopagus, Oscar Sugar, Chicago.

Round-Table Discussions on Cancer.—A series of round-table discussions on cancer is being presented by the University of Chicago under the auspices of the Cancer Coordinator's Pro-

gram. Students, faculty, residents, and the profession-at-large are cordially invited to attend. The following sessions will be held Monday afternoons at 5 o'clock in Billings Hospital, Room P-117:

- Feb. 8, Cancer of the Breast.
- Feb. 15, Tumors of the Uterus and Ovary.
- Feb. 22, Cancer of the Cervix.
- March 1, Tumors of the Mouth, Tongue, Jaw, and Salivary Glands.
- March 8, Tumors of the Bladder, Prostate, and Testes.
- March 15, Tumors of the Small Bowel, Colon, and Rectum.

MICHIGAN

State Medical Election.—At the annual meeting in Grand Rapids Dr. Leroy W. Hull, Detroit, assumed the presidency of the Michigan State Medical Society; Dr. Robert H. Baker, Pontiac, was named president-elect; Dr. L. Fernald Foster, Bay City, secretary; and Dr. William A. Hyland, Grand Rapids, treasurer.

Symposium on Office Procedures.—The Symposium on Office Procedures, Feb. 10, at the Sheraton-Cadillac Hotel, Detroit, is open to anyone conducting an office practice. The topics include "Anesthesia in the Office," "Cardiology for the General Practitioner," "Pediatric Immunization Procedures," "Peri-vascular Diseases," "Industrial Surgery," "O. B. and Gyn. in the Office," and "Laboratory Procedures." The panel system will be used, with questions from the audience at the end of the morning and afternoon sessions. Dr. Arch Walls, Detroit, will serve as moderator in the morning and Dr. Ralph Johnson, Detroit, in the afternoon. Dr. William Bromme, Detroit, will be the speaker at the complimentary luncheon. Dr. Francis P. Rhoades, Detroit, chairman, educational committee, Wayne County Academy of General Practice, has arranged this medical seminar with the cooperation of the Lederle Laboratories. Formal postgraduate credits will be given to members of the American Academy of General Practice for attendance. A card party with table prizes and refreshments has been arranged from 2 to 5 o'clock at the Sheraton-Cadillac for the wives of the physicians attending the symposium. A cocktail party for physicians and their wives will be held at the close of the afternoon session.

NEW YORK

Historical Documents Wanted.—Dr. J. Homer Cudmore, historian of the Medical Society of the County of New York, urges all members who have historical diaries, letters, or other documents on the practice of medicine and the New York County Medical Society in earlier years to communicate with him at the offices of the society, 2 E. 103rd St. (phone ATwater 9-7305). The material is for use in a proposed history of the society.

Meeting on Antihypertensive Drugs.—The New York Society for Circulatory Diseases will meet at 8:30 p. m., Feb. 9, at the New York Academy of Medicine Building for a pharmacological and clinical evaluation of the newer antihypertensive drugs. Among the speakers will be: Dr. Rudolph E. Fremont, chief, cardiovascular department, Veterans Administration Hospital, Brooklyn, and Dr. Milton Mendlowitz, associate attending physician, Mount Sinai Hospital, New York. There will be a panel discussion. Dr. Simon Dack, New York, will preside.

Annual Fracture Day.—The New York and Brooklyn Regional Committee on Trauma of the American College of Surgeons will present the 19th annual Fracture Day Feb. 13 at the Lenox Hill Hospital, 111 E. 76th St., New York. At 10:30 a. m. Dr. John L. Madden, New York, will conduct a symposium on vascular trauma in which Dr. Lester Blum, New York, will give a case presentation on specific arterial injuries; Dr. Jere W. Lord, New York, will present "Arterial Grafts and Their Use Relative to Blood Vessel Trauma"; and Dr. Gerald H. Pratt, New York, will discuss "The Surgical Management of

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Blood Vessel Trauma, Both Early and Late." At 2:30 p. m. Dr. Robert H. Kennedy, New York, will serve as conductor for a symposium on intramedullary nailing of fractures. Fractures of the forearm will be discussed by Dr. Frederick H. Vom Saal, New York; fractures of the humerus by Dr. Robert Green, Philadelphia; fractures of the tibia by Dr. Frederick M. Marek, New York; and fractures of the femur by Dr. Sawnie R. Gaston, New York. Other presentations include:

Ancillary Care of the Fracture Patient, Nutrition, Electrolyte Balance, etc., James A. Nicholas, New York.
Treatment of Acute Facial Trauma, Arthur J. Barsky, New York.
Indications and Contraindications for Early Use of Artificial Hip Prosthesis, Frederick R. Thompson, New York.
Management of Bone Cysts, J. Earl Miles, Brooklyn.
Early Recognition of Impending Nonunion, William H. Cassebaum, New York.

New York City

Lecture on Congenital Heart Disease.—Dr. Thomas F. McDermott Jr., professor of anesthesiology, Georgetown University Medical Center, Washington, D. C., will address the anesthesiology staff of the Columbia-Presbyterian Medical Center Feb. 11 on congenital heart disease.

Memorial to Joseph Goldberger.—A film depicting the life of the late Dr. Joseph Goldberger and his successful struggle to combat and cure pellagra was recently previewed at the New York University-Bellevue Medical Center at a private showing for Mrs. Mary Farrar Goldberger, wife of the late Dr. Goldberger; members of the Goldberger family; and faculty of the college. Dr. Currier McEwen, dean of the college, accepted a copy of the film for use by students of the college from the DuPont Company. The preview was held in advance of the public performance that appeared on "Cavalcade of America" Jan. 12.

In recognition of Dr. Goldberger's contributions to medical science, a laboratory, named in his honor, for the investigation of nutritional and metabolic diseases is now being planned at his alma mater, the New York University College of Medicine. The size and equipment of this laboratory, to be located in the new medical science building of New York University-Bellevue Medical Center, will depend on the funds subscribed to construct and support it.

OHIO

Narcotic Violation.—Dr. Milan D. Chepko, Toledo, pleaded guilty in the U. S. District Court at Toledo to a charge of violating the federal narcotic law and on Nov. 10, 1953, was sentenced to serve a term of two years.

Steubenville Academy Series.—In its series of monthly lectures the Academy of Medicine, meeting in the Fort Steuben Hotel, Steubenville, Feb. 9, will hear "Surgical Aspects of Heart Disease" by Dr. Harold Feil, Cleveland. Physicians, interns, and graduate nurses are invited. Information may be obtained from Dr. Edward B. Weinman, secretary-treasurer, National Exchange Bank Building, Steubenville.

PENNSYLVANIA

Society News.—The Pennsylvania Public Health Association recently elected Dr. Mildred C. J. Pfeiffer, Philadelphia, as president, Dr. J. Thomas Millington, Kingston, Pa., president-elect, Dr. Merl G. Colvin, Williamsport, vice-president, and Robert Conn, Harrisburg, Pa., secretary-treasurer.—The Medical Society of the State of Pennsylvania, which annually presents testimonial plaques to 100-year-old residents of the state, requests that the names, addresses, and dates of birth of residents who will become centenarians during 1954 be sent to the society headquarters, 230 State St., Harrisburg. Hand-lettered, framed testimonials will be presented to the centenarians by officers of the medical society of the county in which they live.—On Feb. 16 Dr. Louis A. Krause, professor of medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, will discuss "Medicine and the Bible" before the Allegheny County Medical Society meeting (225 Jenkins Building, Pittsburgh).

Pittsburgh

Residencies in Allergy.—The Medical Center, University of Pittsburgh School of Medicine, and the U. S. Veterans Hospital, Pittsburgh, announce several openings for a one year residency in allergy. This includes clinical and laboratory training as well as teaching experience. Salary, \$1,500-\$3,300 per annum. Address inquiries to Dr. Leo H. Crip, The Bigelow, Pittsburgh 19.

SOUTH CAROLINA

Deaths from Rabies.—According to the U. S. Public Health Service, a boy who was bitten severely on the face by a dog that was proved rabid by laboratory examination was given an antirabies vaccination the same day, was admitted to a hospital on the day of the last vaccination, but died two days later. The rabies virus was isolated. On recommendation of a family physician, a girl who had played with a dog that was killed the first week in December but was not examined for rabies was given antirabies treatment although she had not been bitten. Treatment was begun Dec. 8, 1953, and on the ninth day the child was admitted to a hospital, where a diagnosis of rabies encephalitis was made. She died five days later.

TENNESSEE

Society News.—The Nashville Surgical Society recently elected Dr. Eugene M. Regen, president; Dr. Cleo M. Miller, vice-president; and Dr. Ray O. Fessey, secretary-treasurer.—Dr. Jewell M. Dorris has been elected president of the Memphis Surgical Society. Dr. Robert M. Pool is vice-president, and Dr. J. Malcolm Aste, secretary-treasurer.

Meeting of Ophthalmologists and Otolaryngologists.—The Memphis Society of Ophthalmology and Otolaryngology will hold its annual convention Feb. 6-8. Guest speakers will be Drs. Daniel B. Kirby, Charles A. Perera, and John M. Converse, all of New York; Dr. Lewis F. Morrison, San Francisco; Dr. Jerome A. Hilger, St. Paul; and Dr. Kenneth C. Swan, Portland, Ore.

WISCONSIN

Meeting on Heart Disease.—Through a grant from the Lucy Ann Droessel memorial fund, a meeting on heart disease will be held Feb. 11 under the cosponsorship of the Medical Society of Milwaukee County and the Wisconsin Heart Association. The speakers will be Drs. James C. Paterson, Collip Medical Research Laboratory, University of Western Ontario, London, Canada; Nelson W. Barker, Mayo Clinic, Rochester, Minn.; and Jeremiah Stampler, Michael Reese Hospital, Chicago. All Wisconsin physicians are invited.

Scholarships for Course at Trudeau School.—The Wisconsin Anti-Tuberculosis Association offers two scholarships to Wisconsin physicians for a four week course in tuberculosis and other chronic chest diseases. Scholarships, which are open to recent graduates of approved medical schools, include a tuition fee of \$100, transportation to Saranac Lake, N. Y., and return, and full maintenance (a total of \$500, of which \$250 is to be returned to the Wisconsin Anti-Tuberculosis Association within five years). The course will be conducted by the Trudeau School of Tuberculosis at Saranac Lake, May 31 to June 25. Veterans desiring to take advantage of the G. I. Bill of Rights rather than the scholarships should clear their registration with the Veterans Administration before the session opens. Application for scholarship must be in the hands of the committee by March 1. For application blank, write to Dr. Arthur A. Pleyte, Wisconsin Anti-Tuberculosis Association, 1018 N. Jefferson St., Milwaukee 2.

HAWAII

Society News.—At a recent meeting of the Honolulu Pediatric Society, the following officers were elected: Dr. John H. Peyton, president; Dr. Goonzo Yamashita, recording secretary; and Dr. Howard M. Sexton, corresponding secretary-treasurer.

GENERAL

Association of Public Health Physicians.—The Committee to Promote the Formation of an American Association of Public Health Physicians will meet at the Palmer House in Chicago at 9:30 a. m., Feb. 6, to adopt a constitution and bylaws, elect tentative officers, and take other steps incident to the organization of the association. It is anticipated that the first annual meeting will be held in Buffalo during the meeting of the American Public Health Association, Oct. 11-15.

Meeting of University Surgeons.—The Society of University Surgeons will hold its annual meeting Feb. 11-13 in Rochester, N. Y. The Thursday sessions will be held in Whipple Auditorium, University of Rochester School of Medicine and Dentistry, for which busses will leave the Sheraton Hotel at 9 a. m. The Thursday session will conclude at 4:10 p. m. with a demonstration of cinefluorography. A dinner dance will be held at the Genesee Valley Club, 7 p. m. Friday meetings will be conducted at the Starlite Roof of the Sheraton Hotel. At 7 p. m. cocktails for members and their wives will precede dinner for members (in dinner jackets) in the ballroom, and a dinner for wives in the Green Room. The sessions will end on Saturday at noon, the morning session being opened with a presentation on metabolic alterations in surgical patients, in which the influence of peritonitis on nitrogen, carbohydrate, electrolyte, and water balance will be discussed.

Meeting of Pathologists in Detroit.—A joint meeting of the North Central Region of the College of American Pathologists and the Michigan Pathological Society will be held at Henry Ford Hospital, Detroit, Feb. 13. A round table on cytology of the female genital tract will be presented at 11:30 a. m. by Gardner M. Riley, Ph.D., Ann Arbor, Mich., and Drs. James W. Reagan, Cleveland, Israel Davidsohn, Chicago, Arthur T. Hertig, Boston, and Donald C. Beaver, Detroit. At 2 p. m. Dr. Hertig will serve as moderator for a seminar "Obstetrical and Gynecological Pathology." Other presentations include:

- Silver Stain in the Cytologic Diagnosis of Uterine Cancer, Gardner M. Riley, Ph.D., Ann Arbor, Mich.
- Cellular Changes in Uterine Cancers and Associated Epithelial Lesions, James W. Reagan, Cleveland.
- Immunologic and Serologic Aspects of Hemolytic Disease of the Newborn. The Birth of a New Discipline: Immunohematology, Israel Davidsohn, Chicago.

The banquet will be held at 6 p. m.

World Heart Congress in Washington.—A combined meeting of the 2nd World Congress of Cardiology and the 27th Scientific Sessions of the American Heart Association, the first international medical gathering of its kind in the United States, will be held Sept. 12-17 in Washington, D. C., under the presidency of Dr. Paul D. White, Boston. Membership in the congress is open to all members of the affiliated national cardiac societies and associations of the world, and to other physicians and scientific workers of comparable status residing in countries where national cardiac societies are not as yet established. Nonmembers are invited to attend the congress by special invitation from the Organizational Committee. Applications must be received at the congress office no later than March 1. Titles and abstracts of papers from the United States and Canada must be received on or before April 1 by Dr. Charles D. Marple, medical director, American Heart Association, 44 E. 23rd St., New York 10. Contributors from countries outside the United States are required to submit titles with abstracts, which may be accompanied by translations in French, Spanish or German, to the secretaries of their national cardiological societies as soon as possible, since the deadline for these to be received in the United States is March 1. A booklet containing detailed information may be obtained by writing to Dr. L. W. Gorham, Secretary-General, Second World Congress of Cardiology, 44 E. 23rd St., New York 10. Scientific and industrial exhibits have been planned. Industrial firms interested in presenting exhibits may communicate with Steven K. Herlitz, Exhibits Manager, 280 Madison Ave., New York 16.

Occupational Medicine Meeting in Richmond.—The American Academy of Occupational Medicine will hold its annual meeting at the John Marshall Hotel, Richmond, Va., Feb. 11-12. The morning session will open with presentation of "Use of Ascorbic Acid in Prevention of Heat Exhaustion" by Dr. Burton E. Field, Spruance Rayon Plant, Richmond, Va., and "Abnormal Physiology of the Kidney and Liver in Acute Chemical Toxemia" by Dr. John H. Foulger, director of medical research, E. I. duPont de Nemours & Company, Wilmington, Del. It will close with "Use of the Chemical Proof Air Suit" by Dr. Edgar E. Evans, medical supervisor, duPont Chambers Works, Deepwater, N. J., which will be preceded by "The Pathology of Deafness Due to Noise" by Stacy R. Guild, Ph.D., associate professor of otology, Johns Hopkins Hospital, Baltimore. Dr. Frederick W. Dersheimer and Dr. Gerald Gordon, duPont Medical Division, Wilmington, Del., will open the afternoon session with "Effective Discipline Promotes Mental Health," which will be followed by a presentation, "Dr. Jones Esq. Appears for the Defense" (Rx vs. Lex), by Carl Geuther of the legal department, E. I. duPont de Nemours & Company. The business meeting, 4:30 p. m., will be preceded by "The Place of Manipulation Therapy in Medicine with Emphasis on Low Back Pain," by John McMillan Mennel, M.B., Richmond. Friday, 9 a. m., busses will leave the John Marshall Hotel for the Spruance Plant auditorium, where the program will be continued. Luncheon at the plant cafeteria will be followed by a tour through the rayon and cellophane plants. The A. L. Robins Pharmaceutical Company of Richmond will be hosts Saturday for a trip to Williamsburg, if sufficient members are interested. The bus will leave around 9 a. m. and return to Richmond between 3 and 4 p. m.

Mid-South Postgraduate Assembly.—The Mid-South Postgraduate Medical Assembly will hold its annual session at the Hotel Peabody, Memphis, Tenn., Feb. 9-12. Guest speakers and their first presentations include:

- Gallbladder Disease, Warren H. Cole, Chicago.
- Serious Eye Diseases in Infants, Kenneth C. Swan, Portland, Ore.
- Management of Cardiac Arrest (colored motion picture), Henry Swan II, Denver.
- Curable Forms of Heart Disease, A. Carlton Ernestine, Cleveland.
- Hemorrhage in Pregnancy, Charles E. Galloway, Evanston, Ill.
- Abuse of the Anticlotics in Chronic Running Ears, Especially in Children, Lewis F. Morrison, San Francisco.
- Management of Disabling Pain in the H.P., Joseph S. Barr, Boston.
- Advances in the Field of Pediatrics, Sydney S. Gellis, Boston.
- Prevention and Treatment of Complications of Long Term Diabetes, Alexander Marble, Boston.
- Simplicity of Biopsy in the Diagnosis of Cancer, Everett D. Sugarbaker, Jefferson City, Mo.
- Treatment of Inoperable Carcinoma of the Prostate, Gershom J. Thompson, Rochester, Minn.
- Clinical Foundation of Chest Radiology, Robert R. Newell, San Francisco.
- Brain Tumors, Bronson S. Ray, New York.
- Clinical Aspects of Obstruction of the Small Bowel, James D. Rives, New Orleans.
- Problem of Aged Parents, Edward J. Stieglitz, Washington, D. C.
- Metabolic Concept of Gynecological Care, Hugh G. Hamilton, Kansas City, Mo.
- Rationale of Physiologic Stomach Rest in the Therapy of Peptic Ulcer and the Role of the Newer Pharmacologic Agents, Henry L. Bockus, Philadelphia.
- Clinical Features and Diagnosis of the Nonpyogenic Meningitides, Theodore E. Woodward, Baltimore.
- Cerebral Changes in the Newborn, James B. Arey, Philadelphia.

An informal dinner will be held in the ballroom, Thursday, 7:30 p. m., where "The Incredible Dr. Jaks" will discuss "Curiosities of the Mind."

The Mid-South Postgraduate Nurse Anesthetists Assembly and the Tennessee Association of Nurse Anesthetists will hold their convention simultaneously at the Hotel Peabody. Their guest speakers include Drs. Arey, Barr, Galloway, Gellis, Hamilton, Marble, Newell, Ray, Sugarbaker, and Henry Swan. Presentations will also be made by Drs. Robert E. Lawson, Leonard J. Vernon, Mary F. Poe, Memphis, Tenn., and John Adriani, New Orleans.

Scholarship in Lipreading.—Competition for the Kenfield memorial scholarship, awarded annually by the American Hearing Society to a prospective teacher of lipreading, will open March 1. Winner of the annual award is entitled to take

a teaching training course in lipreading from any school or university in the United States acceptable to the teachers committee. The scholarship is to be used within one year from the date of award. Graduation from college with a major in education, psychology, and/or speech is a requirement. Specifications for a hard of hearing contestant include 30 hours of private instruction in lipreading from an approved teacher or 60 hours of lipreading in public school classes under an approved teacher. Rules for competition state that an applicant shall plan to teach lipreading with or without other types of speech or hearing therapy. Application blanks may be obtained by writing to the society's national headquarters, 817-14th St., N.W., Washington 5, D. C., and must be returned by May 1 to Mrs. Eleanor C. Ronnei, care of the New York League for the Hard of Hearing, 480 Lexington Ave., New York 17.

CANADA

Charles H. Best Institute.—The new Charles H. Best Institute at the University of Toronto was officially opened Sept. 15, 1953, when Sir Henry Dale, Nobel laureate and chairman of the scientific advisory committee to the British government, turned a golden key in the door of the new building. The institute, which will house the teaching facilities for the department of physiology, will provide greatly increased research facilities for this department and for the associated Banting



Charles H. Best Institute, University of Toronto.

and Best department of medical research. Among those receiving honorary degrees at a special convocation preceding the opening, were Detlev W. Bronk, Ph.D., director of the Rockefeller Institute for Medical Research, New York; Dr. Elliott P. Joslin, Boston; and Dr. Wilder G. Penfield, Montreal.

LATIN AMERICA

Congress of Physical Medicine.—The Latin-American Congress of Physical Medicine will hold its annual meeting in Medellin, Colombia, Feb. 15-20, after which a tour will be made to Bogota, Barranquilla, and Montega Bay, Jamaica. The trip will end Feb. 28. Transportation at a special all-inclusive rate, via plane or steamship, will be available to those participating. Registration must be made through Dr. Cassius Lopez de Victoria, Executive Director, 176 E. 71st St., New York 21.

Congress of Otorhinolaryngology.—The third Latin American Congress of Otorhinolaryngology will take place at Caracas, Venezuela, Feb. 21-25 under the auspices of the government of Venezuela and the ministry of public health and social aid, with the cooperation of the National Academy of Medicine, the Venezuela Society of Otorhinolaryngology and Ophthalmology, the Venezuela Society of Surgery, and the National Society of Otorhinolaryngology. Topics to be discussed include incidents and accidents of anesthesia and otorhinolaryngology, cancer of the rhinopharynx, surgery of malignant tumors of the pharynx and larynx, and esophagogastric lesions treated by cortisone or corticotropin (ACTH).

FOREIGN

Industrial Meeting in India.—The Society for the Study of Industrial Medicine will hold its annual meeting in Calcutta, India, Feb. 4-6. The society, established six years ago, has a membership of about 450 and branches in Calcutta, Bombay, Madras, and Ahmedabad.

Gynecologic Meeting Place Changed.—The Assises Françaises de Gynécologie, originally scheduled for Dijon, will be held in Paris, July 22-24, to discuss "The Treatment of Genital Prolapse." For information and registration, write to the Secretary General, Robert Senechal, 31 Rue Raynouard, Paris 16e.

Ophthalmological Congress.—The annual congress of the Ophthalmological Society of the United Kingdom will be held at the University of Durham, Newcastle-on-Tyne, England, April 22-24. The subject for discussion will be "Inflammatory Vascular Diseases Affecting the Eyes." There will be also three short symposia on the following subjects: "Cyclodialthermy," "Changes in the Incidence of the Eye Affections of Coal Miners in the Past 25 Years," and "Gonioscopy."

Persian Gulf Medical Society.—The Persian Gulf Medical Society, which held its second annual meeting Dec. 7-8, 1953, chose as president-elect Dr. Neal J. Conan Jr., head of the department of internal medicine, Aramco, Dhahran, Saudi Arabia, and clinical professor of internal medicine, American University of Beirut. The program, which opened with the report "Current Research at Harvard School of Public Health on Major Health Problems of the Middle East" by Dr. John C. Snyder, professor of microbiology, Harvard School of Public Health, Boston, included discussions on surgical treatment of cutaneous leishmaniasis and of hydatid disease, treatment of typhoid fever with thiocymetin, surgical aspects of gastrointestinal tuberculosis, drug prophylaxis against amebiasis, and the injection treatment of hernia. The next annual meeting will be held in December on Bahrain Island.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1954 Annual Meeting, San Francisco, June 21-25.

1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Brown Hotel, Louisville, Ky., Feb. 24-25. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 7-9. Dr. Edward L. Turner, 535 N. Dearborn St., Chicago 10, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Baker Hotel, Dallas, Texas, Mar. 4-6. Mrs. Arline Hibbard, 535 N. Dearborn St., Chicago 10, Secretary.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, Feb. 25-27. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE, John Marshall Hotel, Richmond, Va., Feb. 11-12. Dr. Leonard J. Goldwater, 600 W. 168th St., New York 32, Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Commodore, New York, March 11-13. Dr. Marion F. Langer, Room 210, 303 Lexington Ave., New York 16, Executive Secretary.

AMERICAN PROTESTANT HOSPITAL ASSOCIATION, Palmer House, Chicago, Feb. 10-12. Mr. Albert G. Hahn, Protestant Deaconess Hospital, Evansville, Ind., Executive Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, The Homestead, Hot Springs, Va., March 14-16. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

CENTRAL SURGICAL ASSOCIATION, Statler Hotel, Detroit, Feb. 18-20. Dr. Robert M. Zollinger, University Hospital, Columbus 10, Ohio, Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 2-5. Dr. Maurice M. Hoeltgen, 86 East Randolph St., Chicago, Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 15-18. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

MICHIGAN CLINICAL INSTITUTE, Sheraton-Cadillac Hotel, Detroit, March 10-12. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Mich., Secretary.

MID-SOUTH POST GRADUATE MEDICAL ASSEMBLY, Hotel Peabody, Memphis, Tenn., Feb. 9-12. Dr. Thurman Crawford, 869 Madison Ave., Memphis, Tenn., Secretary.

NATIONAL CONFERENCE ON CARE OF THE LONG-TERM PATIENT, Edgewater Beach Hotel, Chicago, March 18-20. Dr. Dean W. Roberts, 615 N. Wolfe St., Baltimore 5, Director.

NATIONAL CONFERENCE ON TRICHINOSIS, A. M. A. Headquarters, Chicago, March 1. Dr. S. E. Gould, Wayne County General Hospital, Eloise, Mich., Chairman.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, Jefferson Hotel, St. Louis, March 10-12. Dr. F. M. Foote, 1790 Broadway, New York 19, Executive Director.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

TOPEKA, KANS., March 19. Dr. William C. Menninger, 3617 West 6th Ave., Topeka, Kansas, Governor.

RICHMOND, VA., Feb. 25. Dr. Charles M. Caravati, 807 West Franklin St., Richmond 20, Va., Governor.

SOUTHERN CALIFORNIA, Riverside, Feb. 13-14. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

FRENCH LICK SPRINGS, Indiana, French Lick Springs Hotel, March 15-17. Dr. Carl H. McCaskey, 20 N. Meridian St., Indianapolis 4, Chairman.

MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.

OMAHA, NEB., Hotel Fontenelle, March 1-4. Dr. Earl A. Connolly, 107 South 17th St., Omaha, Chairman.

RENO, NEV., Riverside Hotel, Feb. 25-26. Dr. Kenneth F. Maclean, 120 N. Virginia St., Reno, Nev., Chairman.

SOCIETY OF UNIVERSITY SURGEONS, Sheraton Hotel, Rochester, N. Y., Feb. 11-13. Dr. C. Rollins Hanlon, 1325 South Grand Blvd., St. Louis, Secretary.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Tutwiler Hotel, Birmingham, Ala., March 8-11. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta, Ga., Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Del Monte Lodge, Pebble Beach, Calif., March 7-8. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ont., Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Tisiologia, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirmot, Geneva, Switzerland, Secretary-General.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 4-7, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6^e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Accuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentina, April 21-28, 1954. Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 14-18, 1954. For information write: Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de Mexico, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida, Cuauhtemoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Halmovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Juillard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12^e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journées, 12, rue Pierre-Geoffroy, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8º andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro, Medico, Caracas, Venezuela, Secretary-General.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Medellin, Columbia, South America, Feb. 15-20, 1954. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, N. Y., U. S. A., Executive Director.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY, Mexico, D.F., Mexico, Feb. 28-March 4, 1954. Dr. Maximo Garcia Castañeda, Humboldt 17, Mexico 1, D.F., Mexico, Secretary-General.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lastmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARKANSAS: * Examination. Little Rock, June 10-11. Sec., Dr. Joe Verser, Harrisburg. *Eclectic.* Little Rock, June 11-12. Sec., Dr. O. L. Atkinson, 2528 Central Ave., Hot Springs National Park.

CALIFORNIA: Written. Los Angeles, March 15-18; San Francisco, June 21-24; San Diego, Aug. 23-26; Sacramento, Oct. 18-21. *Oral.* Los Angeles, March 13; San Francisco, June 19; San Diego, Aug. 21; Los Angeles, Nov. 20. *Oral and Clinical Examination for Foreign Medical School Graduates.* Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO: * Examination. Denver, June 8-9. Final date for filing applications is May 8. *Reciprocity.* Denver, April 13. Final date for filing applications is March 13. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT: * Examination. Hartford, March 9-10. Secretary to the Board, Dr. Creighton Barker, 160 St. Roman St., New Haven. *Homeopathic.* Derby, March 9-10. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DISTRICT OF COLUMBIA: * Examination. Washington, May 10-11. Deputy Director, Mr. Paul Foley, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D. C.

FLORIDA: * Examination. Jacksonville, June 27-29. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami.

GEORGIA: Examination and Reciprocity. Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agaña.

ILLINOIS: Examination and Reciprocity. Chicago, April 6-8; June 22-24, and Oct. 5-7. Supt. of Registration, Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

INDIANA: Examination. Indianapolis, June 16-18. Exec. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA: * Examination. Iowa City, June 14-16. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Examination and Reciprocity. Kansas City, June 9-10. Sec., Dr. O. W. Davidson, 872 New Brotherhood Bldg., Kansas City.

MAINE: Examination and Reciprocity. Portland, March 9-10. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Examination. Baltimore, June 15-18. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1.

MICHIGAN: * Examination. Detroit and Ann Arbor, June 1954. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

MISSISSIPPI: Examination and Reciprocity. Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

MISSOURI: Examination. Jefferson City, Feb. 18-19. *Reciprocity.* Jefferson City, Feb. 8. Exec. Sec., Mr. John A. Hailey, P. O. Box 4, Jefferson City.

MONTANA: Reciprocity. Helena, April 5. *Examination.* Helena, April 6-7. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA: * Examination. Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: Examination and Reciprocity. Concord, March 10. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: Examination. Trenton, June 15-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Examination and Reciprocity. Santa Fe, April 12-13. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

NEW YORK: Examination. Albany, Buffalo, Syracuse and New York City, Feb. 16-19. Sec., Dr. Siles D. Ezell, 23 S. Pearl St., Albany.

OHIO: Examination. Columbus, June 14-16. *Reciprocity.* Columbus, April 13. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Examination. Oklahoma City, June 9-10. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

SOUTH DAKOTA: * Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TENNESSEE: * Examination. Memphis, March 24-25. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: Examination and Reciprocity. Fort Worth, June 21-23. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: Reciprocity. Salt Lake City, Feb. 16. Asst. Director, Mr. Frank E. Lees, 314 State Capitol Bldg., Salt Lake City 1.

VERMONT: Examination. Burlington, Jan. 28-30. Sec., Dr. F. J. Lawliss, Richmond.

VIRGINIA: Examination and Reciprocity. Richmond, June 16. Address: Virginia Board of Medical Examiners, 631 First St., S.W., Roanoke.

ALASKA: * On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Examination. Tucson, March 16. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

COLORADO: Examination. Denver, March 3-4. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

CONNECTICUT: Examination. New Haven, Feb. 13. Address: State Board of Healing Arts, 52 Whitney Ave., New Haven 10.

FLORIDA: Examination. Gainesville, June. Sec., Mr. M. W. Emmel, University of Florida, Box 340, Gainesville.

MICHIGAN: Examination. Detroit and Ann Arbor, Feb. 12-13. Sec., Mrs. Anne Baker, 410 W. Allegan St., Lansing 15.

NEBRASKA: Examination. Omaha, May 4-5. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln 9.

OKLAHOMA: Examination. Oklahoma City, April 16-17. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Examination. Portland, March 6, June 5, Sept. 11 and Dec. 4. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: Examination. Providence, Feb. 10. Administrator, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Examination. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Examination. Memphis, March 17-18. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

TEXAS: Examination. April 1954. Location determined by number of applicants from different sections of the state. Sec., Brother Raphael Wilson, C.S.C., 407 Perry-Brooke Bldg., Austin.

WISCONSIN: Examination. Madison, April 3 and June 5. Final date for filing application is March 26 and May 28. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

*Basic Science Certificate required.

DEATHS

Kirby, Daniel Bartholomew * New York City; born in Cleveland, April 12, 1891; Western Reserve University School of Medicine, Cleveland, 1916; professor emeritus of ophthalmology at New York University College of Medicine; specialist certified by the American Board of Ophthalmology, of which he was formerly chairman, and the American Board of Plastic Surgery; served during World War I; member of the American Academy of Ophthalmology and Otolaryngology, Harvey Society, American Ophthalmological Society, and the Association for Research in Ophthalmology; member of the ophthalmologic societies of Brazil, Argentina, Chile, Peru, Cuba, France, and Greece; fellow of the American College of Surgeons; served on the staffs of the New Rochelle (N. Y.) Hospital, St. Joseph's Hospital in Yonkers, Manhattan Eye and Ear Hospital, New York Eye and Ear Infirmary, and St. Clare's Hospital; formerly surgeon in chief, department of ophthalmology, Bellevue Hospital; author of "Surgery of Cataract" and others; died in Pelham Dec. 27, aged 62, of coronary disease.

Vander Veer, Edgar Albert * Albany, N. Y.; born in Albany, Sept. 29, 1873; Albany (N. Y.) Medical College, 1898; an Associate Fellow of the American Medical Association and member of its House of Delegates from 1911 through 1914 and in 1916; member of the founders group of the American Board of Surgery; member of the Industrial Medical Association and the American Surgical Association; fellow and one of the founders of the American College of Surgeons; past president of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons and the New York State Society of Industrial Medicine; professor emeritus of surgery at his alma mater; on the courtesy staff, Albany Hospital; consulting surgeon, Anthony N. Brady Maternity Home, St. Peter's and Memorial hospitals in Albany, Benedictine Hospital in Kingston, and Memorial Hospital of Greene County, Catskill; died recently, aged 80, of pulmonary infarction and fracture of the left hip.

Altman, Morris Robert * New York City; Baltimore University School of Medicine, 1899; died recently, aged 76, of heart disease.

Bacher, Frank M., Oceanside, N. Y.; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Germany, 1915; died in West Brentwood recently, aged 63, of acute cardiac dilatation.

Biscow, Harry Benjamin, New York City; University and Bellevue Hospital Medical College, New York, 1905; served as president of the Bronx Gynecological Society; affiliated with Sydenham Hospital and the Mount Sinai Hospital, where he died Oct. 27, aged 75, of leukemia.

Bundrant, William Clayborne, Klamath Falls, Ore.; University of Tennessee Medical Department, Nashville, 1910; died in the Hillside Hospital Oct. 10, aged 75, of myocarditis.

Campbell, Harry Lincoln * Medford, Mass.; Boston University School of Medicine, 1938; certified by the National Board of Medical Examiners; physician for the public schools; president of the Medford Medical Society; past president of the staff of Lawrence Memorial Hospital; died Oct. 14, aged 48, of carcinoma of the sigmoid with metastases to the vertebrae.

Fareed, Mirza Ameen Ullah * Santa Monica, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; served on the staff of the Hollywood Hospital in Los Angeles; died Dec. 3, aged 71.

Frankenthal, Maurice Albert * St. Louis; Johns Hopkins University School of Medicine, Baltimore, 1902; an Associate Fellow of the American Medical Association; died in Barnes Hospital Dec. 5, aged 76, of carcinoma of the colon.

Freeman, Will Loren, St. Charles, Mo.; Denver College of Medicine, 1893; served during World War I; formerly county coroner; died in St. Joseph Hospital Dec. 22, aged 84, of cerebral hemorrhage.

Gould, Dorsey Thomas, Waverly, Tenn.; University of Nashville Medical Department, 1902; served on the staff of the General Hospital in Nashville; died in St. Thomas Hospital, Nashville, Nov. 11, aged 82, of chronic myocarditis.

Hirsch, Abraham Albert, Kingsburg, Calif.; Bennett Medical College, Chicago, 1914; served as a civilian contract surgeon at U. S. Army Hospital, Camp Stoneman, Calif.; died in Spokane, Wash., Dec. 6, aged 61, of a heart attack.

Hodges, Thomas Luther * Bismarck, Ark.; Barnes Medical College, St. Louis, 1898 and 1899; died in Clark County Memorial Hospital in Arkadelphia, Dec. 3, aged 85, of coronary thrombosis.

Hosch, Jacob Frederick * Albany, Ore.; University of Oregon Medical School, Portland, 1905; formerly state legislator; served as mayor in Redmond and Bend; on the staffs of the Santiam Memorial Hospital in Stayton, and Albany General Hospital; died Dec. 5, aged 73, of carcinoma of the rectum and colon with metastasis to the lungs.

Keeler, Claude Charles, Albuquerque, N. M.; Central Medical College of St. Joseph, Mo., 1903; served during World War II; fellow of the American College of Surgeons; member of the American Trudeau Society; for many years affiliated with the Veterans Administration; formerly on the staff of the Veterans Administration Hospital in Fort Bayard; died in Laguna Beach, Calif., Oct. 18, aged 73, of coronary thrombosis.

Soriano, Fortunato, South Orange, N. J.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Naples, Italy, 1903; died in the Newark City Hospital Dec. 5, aged 72, of hypertensive cardiovascular disease.

Swarthout, Ellis Frank, Jensen Beach, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; died Oct. 9, aged 75, of arteriosclerotic heart disease.

Taylor, Earle Ernest, Crichton, Ala.; University of Tennessee Medical Department, Nashville, 1904; died Oct. 8, aged 74, of coronary occlusion.

Taylor, Reu Spencer * Detroit; Detroit College of Medicine, 1906; on the staff of the Booth Hospital; died in the Providence Hospital Nov. 23, aged 77, of coronary occlusion.

Tutschulte, Ernest * Monroe, N. Y.; Cornell University Medical College, New York, 1899; Associate Fellow of the American Medical Association; died recently in Cornwall, aged 76, of coronary thrombosis and arteriosclerosis.

Watson, Clyde Emil, Morgantown, W. Va.; Johns Hopkins University School of Medicine, Baltimore, 1910; died Dec. 2, aged 74, of coronary heart disease.

Whitney, George W. * Auburn, N. Y.; Bellevue Hospital Medical College, New York, 1886; served on the staff of the Auburn City Hospital; died recently, aged 89, of cerebral hemorrhage and generalized arteriosclerosis.

Wiener, Solomon * New York City; Columbia University College of Physicians and Surgeons, New York, 1904; fellow of the American College of Surgeons; died Nov. 1, aged 71, of myocarditis.

Woldenberg, Samuel Charles * Washington, D. C.; Chicago Medical School, 1918; served during World War II; died Dec. 17, aged 59, of carcinomatosis.

Ziegler, Frederic Jay * Portland, Ore.; Jefferson Medical College of Philadelphia, 1905; for many years city physician; affiliated with Good Samaritan Hospital and the Providence Hospital, where he died Nov. 22, aged 75, of cancer.

GOVERNMENT SERVICES

NAVY

Reserve Officers Eligible for Active Duty for Training Courses.—Two active duty for training courses for Naval Reserve Medical Department officers have been scheduled for March, 1954. The courses will be of two weeks' duration each and will convene as follows:

Medicomilitary Training.—The third course in medicomilitary matters to convene at the Naval Medical School, National Naval Medical Center, Bethesda, Md., will be conducted March 8-20. The first week of the instruction period will be devoted to orientation in all phases of the medical reserve program of the Navy. Recent advances in military medicine and surgery, including aviation, submarine, and field medicine, will be presented. During the second week, there will be discussions of problems most likely to be encountered, and the recommended defensive techniques to be employed, by medical and dental officers against bacterial, chemical, and radiological activity. Reserve Medical, Dental, Medical Service, Nurse, and Hospital Corps officers residing in the 1st, 3rd, 4th, 5th, 6th, 8th, and 9th naval districts, and in the Potomac River naval command are eligible for this two weeks' active duty training. Interested officers should submit their request for 14 days' active training duty to the commandants of their naval districts. Naval districts listed above have been assigned quotas for this course.

Field Medicine.—Male Naval Reserve Medical Department officers residing in the 11th, 12th and 13th naval districts are eligible to attend a course in field medicine at the Marine Corps Base, Camp Pendleton, Calif., March 15. The course is designed to provide specialized training in field medicine for inactive Naval Reserve Medical, Dental, Medical Service, and Hospital Corps officers. Practical instruction in medical materiel logistics, preventive medicine in the field, treatment of battle casualties, and medical components of Fleet Marine Force units are included. The trainee will receive also practical instruction, including the use of small arms and items of individual field equipment, methods of protecting patients and medical personnel in assault, and march and bivouac routines. Eligible personnel interested in this course should submit their requests to the commandants of their respective naval districts. Bachelor officers quarters will be available for those attending the course in field medicine, and working uniform is required. Participation in these courses will not increase the Naval Reservist's vulnerability for orders to extended active duty.

PUBLIC HEALTH SERVICE

Venereal Disease Symposium.—The sixth annual Symposium on Recent Advances in the Study of Venereal Diseases will be held in the auditorium of the Department of Health, Education, and Welfare, Washington, D. C., April 29-30. The sessions are open to all interested physicians and workers in allied professions. These symposiums usually draw hundreds of persons from all parts of the country and are the occasion for exchange of the latest information by some of the most outstanding authorities. The topics to be discussed at this symposium will include basic and clinical research, serology, epidemiology, treatment, program operation, and professional education.

VETERANS ADMINISTRATION

Neuropsychiatric Meeting at North Little Rock.—The sixth annual neuropsychiatric meeting will be held at the Veterans Administration Hospital, North Little Rock, Ark., on Feb. 25-26. Among the guest lecturers will be Drs. Kenneth E. Appel, president, American Psychiatric Association, Philadelphia; Franz Alexander, director, Chicago Institute for Psychoanalysis;

Francis J. Braceland, psychiatrist in chief, Institute of Living, Hartford, Conn.; Dr. Richard L. Jenkins, chief, research section, psychiatry and neurology service, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.; William Malamud, chairman, department of psychiatry and neurology, Boston University School of Medicine; Jules H. Masserman, Chicago; Henry G. Schwartz, professor of neurological surgery, Washington University, St. Louis; Harvey J. Tompkins, director, psychiatry and neurology service, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.; Gregory Zilboorg, New York, and Alfred C. Kinsey, director, Institute of Sex Research, Bloomington, Indiana. There will be a large number of technical exhibits. Dr. Appel will be the principal speaker at the dinner Feb. 25. There will be no charge for registration, and all interested professional personnel will be welcome. Information may be obtained from Dr. Ewin S. Chappell, Veterans Administration Hospital, North Little Rock, Ark.

MISCELLANEOUS

Positions Open in Food and Drug Administration.—The Food and Drug Administration of the U. S. Department of Health, Education, and Welfare is actively recruiting medical officers to work in Washington, D. C. The positions pay an entrance salary of \$7,040 to \$9,600 with increments. The duties of the positions provide for medical decisions relating to food, drugs, devices, and cosmetics, as well as participation in the medical phases of legal actions against violative products. For further information write to Dr. Irvin Kerlan, Acting Medical Director, Food and Drug Administration, Washington 25, D. C. Interested physicians should also file for Medical Officer Examination, Examining Circular EC-24, issued April 5, 1950, with the U. S. Civil Service Commission, Washington 25, D. C., stating special preference for a position with the Food and Drug Administration.

Twenty-five Billion-Volt Accelerator to Be Built at Brookhaven.—The U. S. Atomic Energy Commission has approved the construction at Brookhaven National Laboratory of an ultra-high-energy particle accelerator for nuclear research. The new machine, an alternating gradient synchrotron, will be designed to produce beams of protons of energies ranging up to 25 billion electron volts. The cost of design and construction of the new accelerator is estimated at 20 million dollars. Design work will start in the near future, and the machine is expected to be completed in five to six years. Once in operation, it will be available to scientists wishing to collaborate in Brookhaven research programs or to carry out independent programs. Particle accelerators have played an important role in the advancement of nuclear science. The energy of the particle beams produced by accelerators bears a direct relationship to the nuclear phenomena that can be studied. As higher energy levels have been attained in laboratory machines, new subnuclear particles have been discovered and new nuclear phenomena observed. The most powerful accelerator now in operation is the Brookhaven Cosmotron, which has accelerated protons to energies of 2.3 billion electron volts. The Bevatron, under construction at the University of California Radiation Laboratory at Berkeley, is expected to accelerate particles into the 5 to 7 billion electron volt range. By providing particles with energies as high as 25 billion electron volts, the Brookhaven alternating gradient synchrotron is expected to contribute important new knowledge of the fundamental nature of matter. Brookhaven National Laboratory, a research center equipped with facilities that no single university could afford, is operated for the AEC by Associated Universities, Inc., a corporation formed by nine northeastern universities: Columbia, Cornell, Harvard, Johns Hopkins, Massachusetts Institute of Technology, Princeton, University of Pennsylvania, University of Rochester, and Yale.

FOREIGN LETTERS

ITALY

Bronchial Adenoma.—At a meeting of the medicosurgical society of the Romagna region, April 20, 1953, Professor D'Arcangelo and his co-workers reported on two patients with bronchial adenoma, both of whom recovered completely. In recent years many contributions have been added to the medical literature on this disease, which in the past was often confused with bronchial carcinoma or inflammatory pulmonary disease. Bronchial adenoma is a neoplasm that originates from the mucous glands of the main bronchi. Although histologically it simulates one type of bronchial carcinoma, it is never complicated by regional and general metastases. Although it may be considered benign from the histological point of view, it should be considered malignant from the clinical point of view. It causes bronchial stenosis, obstructive emphysema, atelectasis, purulent bronchiectasis, pleural reactions, and eventually death from pneumonitis.

The prognosis of bronchial adenoma has greatly improved in recent years, and most patients can be cured by surgical removal of the neoplasm. These good results were made possible by the wider use of bronchoscopy, which is the main means of diagnosis, and by progress in thoracic surgery after the introduction of curare and intratracheal intubation anesthesia. The first of the two patients treated by Professor D'Arcangelo and his co-workers was a young woman who from 1947 to 1951 had recurring episodes of inflammation in the lower lobe of her right lung that consisted mainly of bronchiectatic cavities. In the last year the patient was continuously ill, had a temperature of 100.4 F to 102.2 F, and raised 400 to 600 cc. of mucopurulent sputum every day. Bronchoscopy revealed a nodule, the size of a cherry, which was obstructing the bronchus to the lower lobe and which histologically was found to have all the characteristics of an adenoma. The lower lobe of the right lung was removed and the patient made an uneventful recovery.

The second patient was a 40-year-old man who during the first months of 1950 had episodes of subacute inflammation in the right lung and pleura that became more accentuated until they culminated in atelectasis of the middle lobe. A bronchial carcinoma was suspected, and bronchoscopy was performed. It revealed a swelling, the size of a cherry, in the right lower bronchus at its bifurcation with the middle bronchus. This swelling almost entirely occluded the bronchial lumen. Intra-bronchial diathermy was given, the neoplasm was entirely destroyed, and the patient's symptoms disappeared completely. Bronchoscopic reexaminations have failed to reveal any evidence of recurrence.

The speakers concluded that bronchial adenoma should be suspected in patients with chronic respiratory inflammation and signs of atelectasis or obstructive emphysema. It is wise in such cases to perform a bronchoscopy.

Research on Ballistocardiograms.—Drs. Sibilla and Foianini reported the results of their studies on the basal factor in the genesis of the ballistocardiogram before the Society of Cardiology in Rome on April 29, 1953. They produced stenosis or occlusion of the large vessels at various points in dogs and then registered the effects of these on the ballistocardiogram. They found that, as a rule, occlusion of the superior vena cava obliterated the diastolic waves and that stenosis or occlusion of the pulmonary artery caused accentuation of the diastolic waves. Conditions that diminish the cardiac output, such as aortic and pulmonary stenosis, are accompanied by a decrease in the amplitude of the systolic waves. Pulmonary stenosis is accompanied by an ample K wave. Aortic stenosis is accompanied by a diminution of the amplitude or disappearance of the I wave. Stenosis of the aorta at various points, from the isthmus to above the aortic bifurcation, is accompanied by

notching of the J peak or the JK segment and by disappearance of the K wave. Stenosis or occlusion of the aorta at the bifurcation does not cause the K wave to disappear, probably because of an increased aortic deceleration, as is observed in arterial hypertension.

These experimental findings do not necessarily apply to human beings. In fact, when aortic or pulmonary stenosis is present in human beings, hypertrophy, collateral circulation, and systems of adaptation that are not found in animals are also present. In abrupt occlusions, however, ballistocardiographic effects may be produced in men that are similar to those produced in animals. There are also suggestive analogies in stenosis of the aortic isthmus.

LONDON

Medicolegal Aspects of Spinal Anesthesia.—An interesting medicolegal case has just been decided in the courts. On the same day in 1947 two patients, aged 51 and 62, respectively, were given a spinal anesthetic (dibucaine [Nupercaine]) for a minor operation by the same anesthetist in the same hospital. In both permanent paraplegia developed, and they sued the Minister of Health, the anesthetist, and the manufacturers of the anesthetic for damages. At an early stage of the trial the manufacturers were dismissed from the action as having no liability. The contention of the plaintiffs was that the paraplegia was due to phenol that had percolated through the ampuls into the dibucaine. The ampuls had been stored in a 1:40 phenol solution colored with Bordeaux B, after temporary immersion in a 1:20 solution. The judge accepted the expert evidence that phenol can find its way into an ampul stored in a solution through "invisible cracks" or "molecular flaws" in the glass. This was a possibility to which Prof. R. R. Macintosh had drawn attention in 1951, but the risk was not realized in 1947 when the plaintiffs received their spinal anesthesia. The judge ruled out the possibility of the anesthetist having failed to notice a visible crack in the ampuls before using them. There was a clash of expert evidence at the trial, which lasted 11 days. Both Sir Francis Walsh, consulting physician to University College Hospital, and Dr. Macdonald Critchley, senior neurologist at King's College Hospital, expressed the opinion that the paraplegia could not be due to phenol and considered it to be due to the spinal anesthetic. Prof. R. R. Macintosh of Oxford, on the other hand, was of the opinion that the paraplegia was due to phenol. As the *Pharmaceutical Journal* points out, this case raises the question of how such ampuls should be stored. In his evidence at the trial, Professor Macintosh said the best method of sterilizing ampuls was by autoclaving.

British Orthopaedic Association.—At the annual meeting of the British Orthopaedic Association in Birmingham in October, in a discussion on replacement arthroplasty in elderly patients with fracture of the neck of the femur, O. J. Vaughan-Jackson reported that 32 of 34 patients in his series tolerated the operation well and one died. Fracture of the prosthesis occurred in four patients. He considered that use of metal in place of plastic would probably solve the problem. G. N. Golden, C. C. M. Murray, and A. H. Ord reported good results in 70% and satisfactory results in 15%. K. H. Pridie, on the other hand, considered that Judet arthroplasty should be reserved for patients in whom nailing had failed. In those treated by nailing, the results were satisfactory in 57%. Avascular necrosis was inevitable in 11%, but this was balanced by a 12% incidence of fractured acrylic prosthesis.

Strongly opposing views were expressed in a discussion of the causes of coccydynia. H. J. Richards, on the basis of an analysis of 102 cases, contended that in many cases coccydynia was caused by a central prolapse of one of the lower lumbar intervertebral disks. Almost half his patients had low back pain or sciatica initially; in almost all the rest these symptoms

developed later. K. I. Nissen denied this hypothesis. In his experience, repeated manipulation of the coccyx usually relieved the condition, though in 5 to 10% excision might be necessary.

A discussion on isoniazid in skeletal tuberculosis also revealed a difference of opinion. On the basis of his experience in 20 cases, mainly of tuberculosis of the spine, hip, and knee, treated for six months, A. G. Quinlan concluded that isoniazid caused a marked improvement in the patient's general condition but no dramatic effect on the tuberculous lesion. M. C. Wilkinson had seen little improvement in the synovial membrane after two months of treatment with isoniazid, and he preferred to combine antibiotic therapy with excision of the synovial membrane. A more optimistic outlook was that of M. B. Devas, who had treated 10 patients with a combination of streptomycin, *p*-aminosalicylic acid, and isoniazid for six months. In all of them the lesion was quiescent a year later.

Chemotherapy of Tuberculosis.—A report of the tuberculosis chemotherapy trials committee of the Medical Research Council (*Brit. Med. J.* 2:1005, 1953) compares the effects of streptomycin plus isoniazid and of *p*-aminosalicylic acid plus isoniazid in 391 patients with pulmonary tuberculosis after three months' treatment. The criteria for acceptance in the trial were: (1) tubercle bacilli present in smears of sputum taken within two weeks, or on culture derived from a specimen taken not more than two months previously; (2) tubercle bacilli resistant to neither streptomycin nor *p*-aminosalicylic acid; (3) no previous treatment with streptomycin, *p*-aminosalicylic acid, or isoniazid during the preceding three months; and (4) no concomitant pulmonary collapse therapy or pneumoperitoneum. The selected patients included those with acute rapidly progressive pulmonary tuberculosis believed to be of recent origin; those with other forms of pulmonary tuberculosis considered suitable for chemotherapy; and those with chronic forms of pulmonary tuberculosis expected to make only a limited response to streptomycin plus *p*-aminosalicylic acid.

The dosage schedules used were: (1) 1 gm. of streptomycin daily in one intramuscular injection, plus 200 mg. of isoniazid daily in two equal oral doses; (2) 1 gm. of streptomycin in one intramuscular injection, twice weekly, plus 200 mg. of isoniazid daily in two equal oral doses; (3) 20 gm. of *p*-aminosalicylic acid (sodium salt) in four equal oral doses, plus 200 mg. of isoniazid daily in two equal oral doses; and (4) 10 gm. of *p*-aminosalicylic acid (sodium salt) plus 200 mg. of isoniazid daily in two equal oral doses.

There were two deaths (0.5%) during the period of treatment: one in the first treatment group from renal failure secondary to acute nephritis and one in the third group after three weeks of treatment. There were no toxic reactions to isoniazid, but treatment had to be stopped in five patients in the third group because of toxic reactions to *p*-aminosalicylic acid. At the end of three months the general condition had improved in 89% of the patients in group 1 and 88% of those in the group 3. The average gain in weight was 5.8 kg. for group 1 and 4.9 kg. for group 3. The temperature fell to normal in 79% of the febrile patients in group 1 and 85% of the febrile patients in group 3. In patients with a pretreatment sedimentation rate of 21 or more, the rate fell to 10 or less in 37% of those in group 1 compared with 46% of those in group 3. Grade 2+ or 3+ radiographic improvement was seen in 54% of group 1 and 42% of group 3. The proportion of patients bacteriologically negative, both on direct examination and on culture, at a single examination, was 65% for group 1 and 66% for group 3. Sensitivity tests showed that tubercle bacilli from groups 3 and 4 showed practically no development of resistance to isoniazid or *p*-aminosalicylic acid. In tubercle bacilli from group 1 development of streptomycin resistance was largely prevented, but the incidence of isoniazid resistance was noticeably greater in organisms from group 2 (from 8 to 21 patients) than in those from group 1 (from 2 to 18 patients).

The committee concluded that 20 gm. of *p*-aminosalicylic acid plus 200 mg. of isoniazid daily, used for three months, is very effective in pulmonary tuberculosis. It ranks with the most efficacious chemotherapeutic combination so far tested, namely, 1 gm. of streptomycin plus 20 gm. of *p*-aminosalicylic acid daily. Both drugs are administered orally.

LUXEMBOURG

International Congress of Legal and Occupational Medicine.—The 25th International Congress of Legal, Social, and Occupational Medicine of the French Language was held in Luxembourg in May, 1953, under the chairmanship of Dr. Molitor, Director of Public Health of Luxembourg. Muller discussed neuropathological disturbances following emotional shock and stated that the expert witness must show (1) the reality and importance of the emotional trauma, (2) proof of an emotional shock, (3) evidence of predisposition in the previous emotional status of the patient, (4) the reality of the alleged disturbances, and (5) the details of the manifestations of these disturbances. Other reports dealt with the effects of pain on the ion equilibrium of the blood, differentiation of fetal and adult blood stains, detection of semen stains by acid phosphatase, radiological differentiation of human and animal long bones, and determination of arsenic in the hair and its value in the diagnosis of arsenical poisoning. Mosinger, in a paper on occupational cancer, proposed the following preventive measures: (1) prohibition of industrial use of all carcinogenic products that act by contact, inhalation, or ingestion; (2) reduction to a minimum of all contact with carcinogenic products; and (3) promotion of research on the carcinogenic action of products used in industry and dissemination of the results.

NORWAY

The Changing Clientele of a Skin Hospital.—In November, 1953, the opening of the rebuilt and modernized skin department of the Rikshospital in Oslo was the occasion for a historical survey of this institution by its chief, Dr. Niels Danbolt, professor of dermatology at the University of Oslo. When the forerunner of the hospital was opened in 1817, one of its objects was the teaching of skin and venereal diseases for medical students. The 8 primitive buildings, which lacked even proper foundations, were supposed to house about 25 patients, but the demands for admission were so great that up to 102 had to be housed at the same time. In spite of the miserable conditions under which these patients lived, some of them survived to "enjoy" the hospitality of this institution for up to 10 years. In 1844, again in 1854, and again in 1883 the hospital changed its site, and after the last change it had 72 beds. In 1889 the hospital was put in charge of Prof. Caesar Boeck whose name is immortalized in connection with sarcoid disease, hitherto taken or mistaken for tuberculosis. In Boeck's time also, the patients suffered, for the most part from venereal disease, and Boeck's careful study between 1890 and 1910 of about 2,000 patients with syphilis came to enjoy an international reputation because of its masterly analysis of the morbidity and mortality of this disease. As late as 1900 about two-thirds of the patients suffered from venereal disease, and only 10 or 15 years ago these patients still made up about one-third of the total.

Since Professor Danbolt became chief, the tendency for venereal disease to disappear from the skin hospital's clientele has continued, and, as he has recently pointed out, "The need for hospital beds for venereal cases is thus now exceedingly modest." The new building just opened provides inpatient accommodation for 87 patients and improved facilities for outpatient activities. Laboratories are provided for the study of the disturbances of the peripheral circulation, of importance to the treatment of varicose ulcers and allied conditions. Other laboratories are now available for the study of the allergic diseases, including eczema and fungoid diseases. A lecture hall is also provided for the benefit of students and nurses. The dwindling number of inpatients suffering from venereal disease reflects not only their growing rarity but also their amenability to outpatient treatment, thanks to recent advances in chemotherapy. On the other hand, growing demands are being made on the hospital's accommodation for the treatment of eczema which is constantly growing in importance as an industrial disease.

CORRESPONDENCE

ALTERNATING PRESSURE PAD

To the Editor:—Further experience with the alternating pressure pad since our initial report (*J. A. M. A.* 138:583 [Oct. 23] 1948) has convinced the professional and nursing staffs of various hospitals of its value in the prevention and treatment of decubitus ulcers (bedsores). For the past five years at the Cleveland Clinic Hospital, the pad has been used routinely for all patients admitted with decubitus ulcers as well as for those who are considered candidates for them. The latter group includes paralyzed, comatose, and severely debilitated patients. It is used also for those who find turning painful and for certain others who are immobilized by continuous traction or casts. It has proved a real aid in the proper nursing of these patients. In analyzing our experiences we have found that approximately 1 of every 25 patients admitted has been treated on the alternating pressure pad.

The pad is, in effect, a pneumatic massaging mattress that is placed on top of the ordinary bed mattress, as explained previously (*Mod. Hosp.* 71:72 [Nov.] 1948). It is made by Air-Mass, Inc., 12720 Lake Shore Blvd., Cleveland, of a plastic, waterproof material with parallel rows of air cells running across its width. Alternate series of these air cells are filled and emptied approximately every three minutes by means of a small electric pump that operates quietly 24 hours a day. The pressure in the inflated series of air cells is sufficient to support the patient's weight while the alternate series of cells is deflated. Viewed from beneath, the patient's skin can be seen to blanch and flush alternately as the air cells inflate and deflate every three minutes. The changes in pressure are gradual so that the patient is unaware of movement. The pad is placed on the bed mattress, and, in order not to lessen its effect, it is covered by only a single bed sheet.

Bedsores are gangrene of the skin caused by interference with circulation from pressure of the mattress on bony prominences. In their prevention and treatment, there is no substitute for good nursing care. The nurse's responsibility is to take time to (1) turn the patient frequently, (2) massage the threatened areas, (3) keep the bed dry, and (4) cleanse the ulcers. The use of the alternating pressure pad for patients predisposed to decubitus ulcers has made it possible to keep the skin healthy with the expenditure of half as much nursing time as was previously necessary. The pad has made possible more rapid healing of decubitus ulcers in patients admitted with them.

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MISUSE OF WORDS IN SCIENTIFIC LITERATURE

To the Editor:—In scientific writing one enjoys the availability of words that express meaning and shades of meaning more exactly than in any other class of authorship. On the other hand, the very existence of such refinement of vocabulary carries a responsibility for the author to choose his words carefully in order that his exact intent of meaning is conveyed to the reader. Recent medical literature provides several examples of the misuse of the words toxicity, side-action, and idiosyncrasy. Such a misuse is unfortunate, particularly in the reporting of actions of new drugs, since an improper connotation is invariably conveyed when the wrong word is used. None of these words is synonymous with the others, and the use of toxicity and side-action is particularly confused in recent writing.

Toxicity is intended to express the quality of being toxic; toxic, in turn, is synonymous with poisonous. A poison is a substance that either destroys life or seriously impairs the function of one or more of the organs of the body. A side-action is not a toxic action nor is it evidence of idiosyncrasy. Most, if not all, drugs have more than one action, and side-actions of a drug are standard physiological or pharmacological activities on organs or tissues that are not primarily concerned in therapy. They may be illustrated by the activity of morphine in causing smooth muscle spasm when the drug is administered for relief of pain or by atropine in causing xerostomia when it is given to relieve smooth muscle spasm. Idiosyncrasy means an activity of a drug in a particular patient that is not seen in the vast majority of patients. It is defined as a peculiarity of constitution in that particular patient; a peculiarity that makes him react to the drug differently from most patients. Idiosyncrasies obviously occur relatively infrequently and may be illustrated again by morphine and the excitation resulting in a small percentage of patients after its administration. The correct use of these terms will avoid possible misinterpretation of an author's intent of meaning and enable the reader to obtain an accurate understanding of the writer's thought.

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CORRECTIVE SURGICAL PLANING OF THE SKIN

To the Editor:—The paper by Kurtin (*Corrective Surgical Planing of Skin*, *A. M. A. Arch. Dermat. & Syph.* 58:389-397 [Oct.] 1953) elicits some comments. Credit should be given to Dr. Kurtin for having reintroduced a method that has certain usefulness, but that has been known for over 30 years. It was Kromayer ("Die Behandlung der kosmetischen Hautleiden unter besonderer Berücksichtigung der physikalischen Heilmethoden und der narbenlosen Operationsweisen," Leipzig, Georg Thieme, 1929, p. 15) who described this method that consists of freezing the skin with ethyl chloride and the subsequent use of various sizes of dental burrs mounted on a motor-driven flexible cord. This method is known to most Europeans (Volk, R., and Winter, F.: "Lexikon der kosmetischen Proxix," Berlin, Springer-Verlag, 1936, p. 545) and to a good many American dermatologists. Its usefulness was proved in the treatment of keloids, pigmented nevi, freckles, lentigines, tattoos, Berlocque dermatitis, and superficial pitted scars. Kromayer also recommended this method in the treatment of the hyperpigmented borders of vitiligo.

I have had extensive experience with this method, and I am convinced that the use of dental burrs has a definite advantage over the brush or sandpaper method. While planing can be achieved with wire brushes and sandpaper, the small size of the burrs is more advantageous and permits greater precision in the treatment of tiny areas. Furthermore, it is far easier to control the depth of abrasion with the firm burrs than with the brushes or sandpaper.

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ALLERGIC DISEASE IN THE NEWBORN

To the Editor:—In the Oct. 17, 1953, issue of THE JOURNAL there appeared an article called "Prophylaxis of Allergic Disease in the Newborn." It was inferred that allergic conditions could be minimized if various foods were restricted from the mother's diet during pregnancy. It was also advocated that the newborn be given Mull-Soy, a soybean milk formula, instead of milk. Both of these suggestions need confirmation, for during the past 15 years I have observed 59 pairs of monozygous twins, and, of these, 52 sets had only one twin presenting an allergy. The study of twins gives a controlled study rarely duplicated naturally or clinically, so if only 50% present an allergy, how can any deduction be made statistically as has been offered in the article mentioned? Constructively, I believe that if mothers could be more successful in feeding breast milk and physicians less eager to give foods that infants are not ready to digest, perhaps allergy would be minimized.

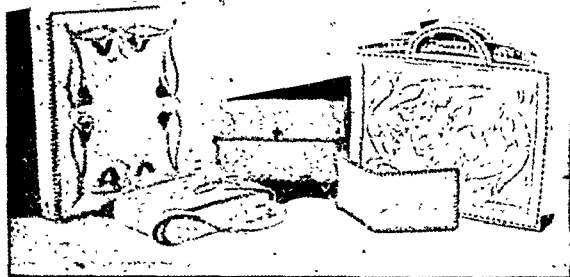
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THE LEISURE CORNER

TOOLING LEATHER AS A HOBBY

The desire to create and the capacity to admire beautiful objects is strongly ingrained in most of us. To enjoy fully the exciting experience of creation in the field of tooling leather, i. e., the impression and shaping of leather, the craftsman-hobbyist obviously requires knowledge of the medium in which he has chosen to work. Interest in tooling leather—or, for that matter, in any form of handicraft—is enhanced by the type of decoration adorning the object of one's artistic expression. When a decoration is original in design, interest becomes intensified. Familiarity with material and tools is, of course, important. A hobbyist should become reasonably well acquainted with various leathers, their adaptability to a variety of products, and their utilitarian functions.

Cowhide and calfskin constitute the main tooling leathers. Other types of leather can also be used for stamping, but, by and large, their appropriateness for the purpose of satisfying the requirements of a hobby is limited. Preference for cowhide over calfskin, or vice versa, depends largely on the finished article and its utilitarian function. If one were to select leather for a brief case, heavy cowhide would be the leather of choice, particularly since it is capable of withstanding hard wear. On the other hand, calfskin possesses the



softness and pliability demanded in ladies' handbags and men's wallets (see figure). In general, a leather supply house can readily furnish to the hobbyist scraps of leather that he can test for depth of impression and specific suitability. Once a decision has been reached, he can proceed with the purchase of leather that will meet his purposes.

A leather surface can be covered by any one of a number of different designs merely by tooling the design on the finished side of the material. Few tools are required. Modeling tools are usually shaped to establish specific impressions. One such tool is a combination tracer and beveler. The tracer end is used to transfer the outline of a design from paper to leather; it is also used to deepen the impression so that it is not lost when subsequent wetting of the leather takes place. The beveled end is employed for shaping, rounding off parts of a design, or separating design and background. A background tool has the shape of a spatula. Each end differs in size in order to accommodate various areas. Some modeling tools contain two ballpoint ends. For straight line tracing and deepening, use of a straight metal edge is most satisfactory. The background of a hand-tooled leather article is usually devoid of decoration, since its presence would detract from the main design. In the event a decorated background is contemplated, it can readily be produced by means of background stamps. These can be purchased either in various designs or they can be made by the hobbyist himself in a desirable form from pieces of mild steel. For physicians who wish to experiment with tools to suit individual fancy, dentists' instruments offer a challenge to ingenuity. Home-shaped modelers are quite adequate for production of numerous lines and shapes, differing from purchased tools in that only one end is shaped.

Before a design is transferred to leather, it should be carefully drawn on thin, medium-hard paper. Leather should first be moistened to receive and retain an impression. During the preparatory stage, the unfinished side is sponged sufficiently to indicate water stain on the finished side. Accumulation of moisture in excessive amounts affects the impression and should be avoided. After being properly placed, the paper is attached to the leather by means of clips. Damp leather is unduly sensitive to pressure, and paper clips leave a mark accordingly. However, since it is generally fastened to a marginal site outside of the design itself, the impression produced by a clip rarely damages either design or leather. As soon as paper and leather are attached, the tracer is used to follow the design on paper and to transfer it to leather. The paper pattern is then removed, the remainder of the tooling process consisting of direct contact between modeler and leather. As he proceeds to his goal, a certain degree of originality may be exercised by the craftsman-hobbyist. When modeling a floral pattern, it may be desirable, for example, to tool away from the form in one case or to shape the form in another. Then there are those hobbyists who wish to employ both techniques. It is possible, to a certain extent, to achieve the effect of etching and embossing as well as cutting and piercing.

Some working in the tooling leather medium will be interested in portraits on leather. For this purpose an additional instrument is required—the familiar scalpel. An incision is made and the finished surface separated from the rest of the leather thickness so as to form a pocket. The pockets are then stuffed with cotton to raise the surface, and the leather is glued at the site of incision. This results in a raised cheekbone, a shaped nose, rounded eyes, or any other anatomic features.

Despite a well established step-by-step procedure for tooling leather, the hobbyist is not restricted to a single style or technique. Leather furnishes luxurious opportunity for innovation to creative minds and supple imaginations.

BUSINESS PRACTICE

The following material is based on a public relations manual issued by the Public Relations Department of the American Medical Association.—ED.

EXPLAINING AND COLLECTING MEDICAL FEES.

Because many doctors—and patients—are reluctant to broach the subject of fees, the American Medical Association now sells an attractive office plaque that encourages fee discussions with this message: "To All My Patients—I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical service is based on a friendly, mutual understanding between doctor and patient." A physician should be prepared to give his patient an estimate of the cost of his care. The physician who thinks he soothes his patient by saying, "Don't you worry about money; just concentrate on getting well," is side-stepping his responsibility. Some physicians hand patients an estimate of medical expenses before hospitalization. Explanations of medical costs should extend beyond the doctor's own charges. For example, if a patient is to undergo an operation, the physician should explain the surgeon's, anesthesiologist's, and radiologist's charges; the laboratory fees; and home, hospital, and office call charges as well as the approximate hospital bill, which may include an operating room fee, charges for medicines and dressings, laboratory fees, and the cost of blood transfusions. The importance of calling in another physician for consultation should be explained to patients, and it should be made clear that there will be a separate fee for the consulting physician. People are inclined to blame doctors for all medical costs, even hospital charges. The doctor can avoid misunderstanding by giving the patient an idea of what the whole medical procedure will cost him.

When it comes to collecting medical bills, the following steps are recommended:

1. Send itemized bills regularly.
2. After three monthly statements have been sent and no remittance received, send a reminder note in the fourth month signed either by the doctor's secretary or the doctor himself:

Dear:

We thought perhaps you had overlooked this statement which has been charged against your account since

3. If there is no reply to the above reminder, a personal letter from the doctor should be sent in the fifth month.

Dear:

Since you have not been to see me for some time, I trust that you and your family are all well. My bookkeeper tells me that your bill for \$35 has been on our books for several months. If you have questions about the charges or have some other reason for not making the payment, please come into the office and talk to me about it. We want to help you in any way that we can.

4. If no reply is forthcoming, the doctor should write a letter of this type in the sixth month:

Dear:

Last month I wrote you that your bill for \$35 has been on our books for six months. I thought perhaps we might help you. I was surprised that you did not answer my letter or come in to my office to talk to me about it. Won't you please get in touch with me soon so that we can settle this matter?

5. If a patient ignores this letter, too, he is obviously not acting in good faith. At this point the account may be turned over to an agency for collection and the following letter sent:

Dear:

We have sent you statements and reminders and written you several times in regard to your bill for \$35, which has been due for the past six months. Since we have not heard from you, we have no other course but to turn the account over to a collection agency. If we do not hear from you within the next 10 days, all further contacts in regard to this bill will be made by a representative of the agency.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Charitable Hospitals: Criteria of Tax Exemption Status.—This was a mandamus action to have the plaintiff's property declared exempt from taxation and removed from the tax rolls. The action was heard in the Supreme Court of Kansas.

The plaintiff, Atchison, Topeka and Santa Fe Hospital Association, alleged that it was incorporated as a non-profit corporation, without capital stock and that the property in question was owned by it and used and operated exclusively for charitable and benevolent hospital purposes. The Kansas constitution provides: "All property used exclusively for state, county, municipal, literary, educational, scientific, religious, benevolent and charitable purposes . . . shall be exempted from taxation." And the statutory provision on the same subject provides: "That the property described in this section, to the extent herein limited, shall be exempt from taxation: . . . All buildings and parts of buildings belonging to scientific, literary and benevolent associations, used exclusively for scientific, literary or benevolent purposes. . . ." The evidence showed that the hospital was operated by funds raised from dues of members, all employees of the Atchison, Topeka and Santa Fe Railroad, and by annual contributions from the railroad in the amount of seven per cent of the dues plus the

furnishing by the railroad of transportation, auditing, accounting, and other services at no cost to the hospital association. The hospital was not open to nonmembers except in cases of extreme emergency, however, and the defendant therefore contended that the hospital was an exclusive affair, comparable to an exclusive club, with the benefits accruing only to its closed membership. In a prior case the Supreme Court of Kansas held that a hospital that was owned and managed by a corporation organized for benevolent purposes, that paid no dividends, that devoted all its income to the care of sick or injured persons and to improving and extending its facilities for so doing, and that received and cared for patients without discrimination as to their race, color, or creed was a charity and its property was used exclusively for charitable purposes. The defendants conceded the force of this decision but pointed out that in the present case the hospital facilities were available only to railroad employees who are in good standing and not to the general public. They argued that this distinction took the case out from under the rule announced in the former decision.

Generally, said the Supreme Court, where the statute exempts institutions of purely public charity, an organization limiting its benefits to a restricted class is not exempt. A different rule ordinarily prevails, however, when the property rather than its owners is exempted from taxation if devoted to charitable purposes. Under the Kansas constitution it is the particular property that is exempt and its exemption depends on its use. Those states that hold that property used principally for the benefit only of persons in some way related to the members of a society, an artificial class as it is called, is nonexempt, do so generally for the reason that the law governing the case requires that the charity shall be a purely public charity. The various private charities that provide for any portion of the public, however, relieve the public and all taxpayers of a certain portion of the public burden and are thus a benefit to all; the numerous so-called private charities provide in the aggregate for as great a portion of the poor and dependent, which the state is under obligation to support, as do the so-called public charities. That the benefits of a home for the support of widows and orphans are confined to the members of a particular secret society does not deprive it of the character of a purely public charity within the meaning of a constitutional tax exemption. In the present case, the Supreme Court concluded, the property of the Atchison, Topeka and Santa Fe Hospital Association is not being used or operated in connection with the promotion of any other business. The property, both real and personal, of the association is, therefore, being used exclusively for charitable and benevolent purposes and hence is exempt from taxation pursuant to the provisions of the Kansas constitution. Accordingly, the Supreme Court entered judgment in favor of the plaintiff hospital association. *A. T. & S. F. Hospital Association v. State Commission of R. and T.*, 246 P. (2d) 299 (Kansas, 1952).

MEDICAL MOTION PICTURES

FILM LIBRARY HAS RECORD YEAR

A total of 2,273 films were lent to medical societies, medical schools, hospitals, and other scientific groups in 1953 according to Ralph P. Creer, Secretary, Committee on Medical Motion Pictures. This represents an increase of 185 over the previous year and is a 45% increase in the number of films distributed during 1951. This is in addition to the more than 100 A. M. A. films sent to medical societies and television stations for use on various television programs.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. J. Diseases Children, Chicago

86:553-704 (Nov.) 1953

- *Use of Ferric and Ferrous Iron in Prevention of Hypochromic Anemia in Infants. W. L. Niccum, R. L. Jackson and G. Stearns.—p. 553.
- Unusual Malignant Ovarian Tumor in Young Child. I. H. Einsel, R. E. Bowman and S. Koletsky.—p. 568.
- Growth and Metabolism in Normal and Thyroid-Ablated Infant Rhesus Monkeys (*Macaca Mulatta*): VI. Iodine Metabolism in Normal and Thyroid-Ablated Infant Rhesus Monkeys (*Macaca Mulatta*). D. E. Pickering, D. A. Fisher, K. G. Scott and others.—p. 574.
- *Relationship of Anesthesia to Postoperative Personality Changes in Children. J. E. Eckenhoff.—p. 587.
- Pinworm Infection (*Enterobiasis*) in Children: Comparative Study of Four Oxycitricides. T. S. Bumbalo, F. J. Gustina, J. Bona and R. E. Oleksiak.—p. 592.

Prevention of Hypochromic Anemia in Infants.—Ferric iron as ferric ammonium citrate was given to 115 full-term infants and ferrous iron as ferrous sulfate was given to 37 full-term infants in order to determine the amount and form of iron needed for prevention of hypochromic anemia in infants in whom this disease continues to occur commonly in the latter half of the first year of life. In addition, seven immature or prematurely born infants were studied. The dose of iron given to the infants in their formulas from the 12th to the 52nd weeks of life or longer was 5 mg. daily at 3 months of age, increased to 10 mg. daily after 6 months of age. No instance of gastrointestinal irritation due to the iron was observed. Ferrous iron in the same dosage resulted in significantly higher hemoglobin values in well infants than did ferric iron. The small amounts of iron given daily were sufficient to maintain hemoglobin values at a constant level throughout the latter half of infancy in all full-term infants. Even in infants with severe upper respiratory infections pronounced anemia did not occur, but hemoglobin values were maintained above 10 mg. per 100 cc. Premature infants and infants of multiple birth may need more assistance in the prevention of anemia than is provided by these small daily quantities of iron. A small transfusion at 15 to 20 weeks of age was efficacious in restoring the hemoglobin value to near normal, after which 10 mg. of iron daily maintained the hemoglobin at normal levels. The authors' studies corroborated the findings of other workers that severe infectious illness in infancy is accompanied by significant decrease in the hemoglobin level. Mild infections, on the other hand, caused no significant decrease. The amount of iron storage at birth depends on the adequacy of the mother's diet, the length of gestation, and the watchfulness of the obstetrician that the umbilical cord is not clamped until all pulsations cease, so that the baby receives the maximum amount of blood possible. The infant born at term of a healthy well-fed mother will maintain a good hemoglobin level at least up to six months of age. If he receives some iron-containing foods daily after the fourth month of life, probably no other iron supplements will be necessary. An infant receiving only the iron of milk generally shows a slow decrease in hemoglobin level during the latter half of infancy, and, if his original iron store is poor, an iron deficiency anemia will occur in late infancy. In view

of the many variables involved in determining the iron available to the infant and the difficulty in evaluating each variable, the effect of a daily dosage of iron maintained at a level sufficiently low to be given in the formula was studied by the authors. The reported results showed that hypochromic anemia was prevented by these small daily amounts (5 to 10 mg.) of iron.

Anesthesia and Postoperative Personality.—A questionnaire survey was made of the parents of 612 children who underwent otolaryngological operations at the hospital of the University of Pennsylvania, correlating the preparation and induction of anesthesia with personality changes in these children. Results showed that 104 (17%) of the 612 children had personality changes that might be attributed in part to inadequate pre-anesthetic or anesthetic management. Thirty-two per cent of the changes reported were in the form of night cries or terrors, appearing either for the first time or becoming worse after hospitalization. Temper tantrums comprised 26% of the changes; fear phenomena constituted 23%; and the remainder (19%) pertained to bed-wetting. The younger the child the more likely is the development of personality changes. Unsatisfactory preanesthetic medication and induction of anesthesia is associated with a high incidence of personality changes in young children. Bed-wetting occurred five times more commonly after the use of vinyl ether (Vinethene), than after ethyl chloride, cyclopropane-nitrous oxide, or thiopental.

Blood, New York

8:965-1060 (Nov.) 1953

- Clinical Evaluation of New Antimetabolite, 6-Mercaptopurine, in Treatment of Leukemia and Allied Diseases. J. H. Burchenal, M. L. Murphy, R. R. Ellison and others.—p. 965.
- Thrombocytopathic Purpura with Normal Prothrombin Consumption: Hemorrhagic Diathesis Due to Partial Platelet Dysfunction. A. de Vries, E. Shafir, P. Efrati and Z. Shamir.—p. 1000.
- Studies on Abnormal Hemoglobins: VIII. Gelling Phenomenon of Sick Cell Hemoglobin: Its Biologic and Diagnostic Significance. K. Singer and L. Singer.—p. 1008.
- Studies in Rh Sensitization: VI. A-B-O Blood Groups and Rh Subtypes in Sensitized and Nonsensitized Rh Negative Pregnant Women. A. S. Wiener, R. Nappi and E. B. Gordon.—p. 1024.
- Fatal Transfusion Reaction Due to Kell Factor. F. Ottensooser, O. Mel-lone and A. Biancalana.—p. 1029.
- Bone Marrow Plasmocytosis: Review of 60 Cases. H. Klein and M. Block.—p. 1034.
- Immunohemolytic Mechanism in Vivo: Mode of Destruction of Sensitized Red Cells in Living Organism. C. Wasastjerna.—p. 1042.

Diseases of Nervous System, Chicago

14:289-320 (Oct.) 1953. Partial Index

- *Invert Sugar in Insulin Coma Therapy. M. Mills Jr. and F. J. Moore.—p. 291.
- Personality and Social Implications in So-Called "Psychopathic Personality." E. E. Mueller and B. H. Preston.—p. 296.
- Integration of Disintegrated Personality. J. L. McCartney.—p. 305.
- Group Psychotherapy with Wayward Girls. B. Kotkov.—p. 308.
- Hysterical Amnesia Treated by Hypnosis: Psychiatric and Psychological Aspects. S. M. Izner, J. Goldman and R. Leiser.—p. 313.
- Carbon Dioxide Maintenance Therapy in Neuroses and Alcoholism. A. A. LaVerne and M. Herman.—p. 316.

Invert Sugar in Insulin Coma Therapy.—Therapeutic insulin coma is at present terminated either by sugar in a gastric gavage or with intravenous injections of either 33.3 or 50% dextrose. It occurred to Mills and Moore that invert sugar, which is composed of equal parts of D-glucose and D-fructose, possesses certain characteristics that might make it advantageous for use in routine termination of insulin hypoglycemia or for emergency intravenous termination in those comas routinely terminated by gavage. The product is available commercially in 5% and 10% solutions. One-half of the patients subjected to insulin shock therapy at the Veterans Administration hospital in Hous-

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Titles marked with an asterisk (*) are abstracted.

ton, Texas, served as controls, their insulin coma being terminated by the rapid intravenous administration of 100 cc. of 50% dextrose. The remaining half of the patients was given 20% invert sugar by the same route and in the same amount. The study was continued for a month, during which a total of 89 comas were terminated with 100 cc. of 50% dextrose and 132 comas were terminated with 100 cc. of 20% invert sugar. It was found that there was no significant difference in the time required for clinical arousal from coma when invert sugar was used instead of dextrose, and this was also true when the electroencephalogram was used to determine arousal. Invert sugar was much less irritating to the tissues at the site of injection. Invert sugar gives a much more stable blood level immediately after injection than does dextrose, and it is believed that this fact may, by eliminating compensatory hypoglycemia, help to prevent secondary comas. The authors conclude that 20% invert sugar is at least as effective as 50% dextrose in returning to consciousness patients in insulin hypoglycemia. Insulin coma patients provide an excellent opportunity for further research in carbohydrate metabolism.

Journal Lab. and Clinical Medicine, St. Louis

42:665-832 (Nov.) 1953

- An evaluation of Preservation of Human Blood Stored in Experimental Plastic Containers: I. In Vitro Studies. R. L. Wall, G. Shinowara, B. Bouroncle, and others.—p. 665.
 Id.: II. In Vivo Studies. R. L. Wall, N. M. Buckley and C. A. Doan.—p. 674.
 Diketogulonic Acid and Diabetes Mellitus. A. W. Marcovich and J. F. Marcovich.—p. 681.
 Effect of Dialyzed Concentrated Human Urine on Renal Function in Human Being. J. Nichols.—p. 685.
 Relation of Acute Changes in Colloidal Osmotic Pressure to Body Weight in Patients with Hepatic Cirrhosis and Ascites. M. M. Best and J. D. Wathen.—p. 688.
 Stability of Viral Potency of Smallpox Vaccine When Prepared in Calf Globulin, Dehydrated, and Stored Without Refrigeration. E. Cardone.—p. 693.
 Tocopherol Response Curves and Fat Absorption. J. Pomeranze and R. J. Lucarello.—p. 700.
 Influence of Alcohol Consumption on Hepatic Function in Healthy Gainfully Employed Men. L. Zieve and E. Hill.—p. 705.
 Antirabbit Platelet and Red-Cell Factors in Normal Blood. C. W. Mushett, E. H. Reisner Jr., L. Weiner and others.—p. 713.
 Studies on Platelets: XI. Antigenicity of Platelets and Evidence of Platelet Groups and Types in Man. M. Stefanini, G. I. Plitman, W. Dameshek and others.—p. 723.
 Uptake of Subcutaneous and Intramuscular Silver-Coated Radioactive Gold Colloids by Lymph Nodes in Dogs. A. H. Jackson, F. E. Staggers and P. F. Hahn.—p. 739.
 Effect of Large Doses of Cortisone upon Ability of Reticuloendothelial Cells to Phagocytose Streptococci. B. J. Clawson and S. T. Nerenberg.—p. 746.

Journal Nat. Cancer Inst., Washington, D. C.

14:229-456 (Nov.) 1953. Partial Index

- Quantitative Studies on Multiplication of Neoplastic Cells in Vivo: I. Growth Curves of Ehrlich and MC1M Ascites Tumors. G. Klein and L. Révész.—p. 229.
 Method for Quantitative Spectrophotometric Measurement of 7-Hydroxy-2-Acetylaminofluorene. C. M. Damron and H. M. Dyer.—p. 279.
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 Influence of Bone-Marrow Injections on Involution and Neoplasia of Mouse Thymus After Systemic Irradiation. H. S. Kaplan, M. B. Brown and J. Paull.—p. 303.
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 Induced Adaptation in Tumor: Specificity of Change. M. K. Barrett, M. K. Derringer and W. H. Hansen.—p. 381.
 Complement Fixation in Animal Neoplasia: VI. Development of Reaction in Various Breeds of Rabbits Carrying Brown-Pearce Carcinoma. S. W. Lippincott, H. Thornton, L. D. Ellerbrook and others.—p. 395.
 Studies of Carcinogenic Effect of Urethan on Transplanted Lung Tissue in Strain A Mice. R. A. Malmgren and E. A. Saxen.—p. 411.
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New York State Journal of Medicine, New York

53:2271-2414 (Oct. 15) 1953. Partial Index

- Electrolyte Disturbances in Diabetes. M. Fabrykant.—p. 2317.
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 Occupational Dermatitis as Encountered by Part-Time Industrial Physician. M. E. Goebel and R. A. Havrilla.—p. 2327.
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 Ion Exchange Resins in Management of Edema. G. E. Miller.—p. 2335.
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 *Infrequency of Uncomplicated Coronary Artery Disease and Myocardial Infarction as Causes of Cardiac Hypertrophy and Death, Especially in Females, Based on Survey of 8,500 Necropsies. H. Gross, A. Jezer, N. Somberg and E. B. Polin.—p. 2358.

SYMPOSIUM: PROBLEMS OF AGING

- National Significance of Aging. C. Tibbitts.—p. 2363.
 New Medical Horizons in Aging. R. Harris.—p. 2367.
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 Institutional Care for the Aging. I. J. Brightman and P. F. Birkel.—p. 2372.
 Treatment of Postoperative Anorectal Strictures with Suppositories of Vitamin E. M. Ant.—p. 2376.
 Herpetic and Postherpetic Pain Treated with Cortisone and ACTH. L. Frank and R. Lysiak.—p. 2379.

Causes of Cardiac Hypertrophy and Death.—A survey was made of 8,500 necropsies to determine the occurrence of death from uncomplicated coronary artery disease in both sexes up to the age of 70 years. Of these, 3,500 necropsies were analyzed from a hospital for chronic diseases, 4,550 from three general hospitals, and 450 from the Armed Forces Institute of Pathology. Cases with (1) blood pressure of 150 mm. Hg systolic and 100 mm. Hg diastolic or more, (2) heart weights of 400 gm. or more, (3) nephrosclerosis, and (4) histological evidence of generalized cardiac fiber hypertrophy not due to valvular disease or myocarditis were regarded as indicative of previous hypertension and were, therefore, excluded. At the hospital for chronic diseases the incidence of uncomplicated coronary artery disease was 0.65%. At the three general hospitals the proportion ranged from 7.95% to slightly more than 10%. The incidence of uncomplicated coronary artery disease might even be smaller if it were possible to determine the number of cases of hypertension with small hearts without nephrosclerosis or an adequate history of elevated blood pressure. Since nephrosclerosis is concomitant with hypertension, an attempt was made to answer the question as to whether coronary disease and cardiac infarction cause cardiac hypertrophy. Results of comparing the incidence of cardiac hypertrophy in cases of myocardial infarction, both with and without nephrosclerosis, indicated that nephrosclerosis is directly related to cardiac hypertrophy and that myocardial infarction is probably not causally related to cardiac hypertrophy. Analysis of 450 sudden deaths among young soldiers showed a high percentage of hypertension, especially if left ventricular or generalized cardiac hypertrophy was regarded as indicative of this condition. The incidence of uncomplicated coronary artery disease among these deaths was not large, when it is considered that the material was pooled from two world wars, Civilian Conservation Corps camps, and civilian government employees comprising millions of personnel. Death was frequently due to coronary insufficiency resulting from the rigors of military life. Uncomplicated coronary artery disease occurs in clinical cardiac practice, especially in men, but is not common as a cause of death in hospital practice in either sex. The idea that patients die on the way to the hospital is dispelled by its uncommon occurrence in the files of the coroner. In the absence of cardiac hypertrophy, coronary artery disease does not cause chronic congestive failure frequently. With the subsequent development of a collateral circulation there also may be freedom from coronary insufficiency.

South Carolina Medical Assn. Journal, Florence

49:259-280 (Oct.) 1953

- Erythroblastosis Fetalis. G. F. Young and M. W. Beach.—p. 259.
 Involutional Depressive States. R. R. Mellette Jr.—p. 263.
 Charleston Heart Demonstration Program: Preliminary Report. C. L. Mache Jr.—p. 268.

FOREIGN

British Medical Journal, London

2:1005-1058 (Nov. 7) 1953

- *Isoniazid in Combination with Streptomycin or with P.A.S. in Treatment of Pulmonary Tuberculosis. G. Marshall, J. W. Crofton, R. Cruickshank and others.—p. 1005.
- Desensitization to Streptomycin and P.A.S. J. Crofton.—p. 1014.
- *Effect of Hexamethonium Bromide on Cerebral Circulation in Hypertension. H. A. Dewar, S. G. Owen and A. R. Jenkins.—p. 1017.
- Detection of Achlorhydria Without Intubation. H. Conway and R. W. Meikle.—p. 1019.
- "Lente". Insulin (Insulin Zinc Suspension): Further Studies. W. Oakley.—p. 1021.
- New Insulins—Lente, Ultralente, and Semilente. I. Murray and R. B. Wilson.—p. 1023.
- Insulin Zinc Suspensions. J. D. N. Nabarro and J. M. Stowers.—p. 1027.
- Classification of Various Insulins. F. Gerritzen.—p. 1030.

Chemotherapy of Pulmonary Tuberculosis.—A comparative study of the effects of isoniazid combined with streptomycin and of isoniazid combined with *p*-aminosalicylic acid was carried out on 391 patients with pulmonary tuberculosis after three months' treatment in 50 hospitals. Of the 391 patients, 119 were given 1 gm. of streptomycin daily and 100 mg. of isoniazid twice daily; 100 patients received 1 gm. of streptomycin twice a week plus 100 mg. of isoniazid twice daily; 101 patients were given 5 gm. of the sodium salt of *p*-aminosalicylic acid four times daily plus 100 mg. of isoniazid twice daily; and the remaining 71 patients received 5 gm. of the sodium salt of *p*-aminosalicylic acid twice daily plus 100 mg. of isoniazid twice daily. Three groups of patients were studied. Group 1 included those with acute rapidly progressive disease of recent origin. Group 2 was comprised of those with other forms of pulmonary tuberculosis considered suitable for chemotherapy. Group 3 included those with chronic disease unlikely to respond to streptomycin combined with *p*-aminosalicylic acid. A full comparison of the four methods of treatment in all three groups of patients will be made when results for more patients are available. The present report is concerned with the principal comparison of therapeutic results obtained in patients in groups 1 and 2 treated with 1 gm. of streptomycin daily plus 200 mg. of isoniazid daily (called SH patients) with those treated with 20 gm. of *p*-aminosalicylic acid (sodium) daily plus 200 mg. of isoniazid daily (called 20 PH patients). The distribution of patients with severe and less severe illness was similar in the SH patients and in the 20 PH patients. After three months of treatment, the general condition had improved in 89% of the SH patients and in 88% of the 20 PH patients. The average gain in weight was 12.8 lb. (5.8 kg.) for the SH patients and 10.8 lb. (4.9 kg.) for the 20 PH patients. The temperature was restored to normal in 79% of febrile SH patients and 85% of febrile 20 PH patients. The erythrocyte sedimentation rate of 21 or more before treatment was reduced to 10 or less in 37% of SH patients, compared with 46% of 20 PH patients. Changes in radiographic appearances were independently assessed by a radiologist unaware of the treatment of any patient. Two plus or three plus improvement was observed in 54% of the SH patients and in 42% of the 20 PH patients. There were two radiographic deteriorations and one death on each treatment. None of the reported differences are statistically significant. The proportion of patients bacteriologically negative both on direct examination and on culture, at a single examination at three months was 65% for the SH patients and 66% for the 20 PH patients. Bacillary resistance to isoniazid was observed in 2 of 39 SH patients with positive cultures tested at three months, compared with none in 29 similar 20 PH patients. Bacillary resistance to streptomycin was observed in 1 of 38 SH patients with positive cultures and to *p*-aminosalicylic acid in 1 to 28 similar 20 PH patients. It is concluded, judging solely from the results at three months, that *p*-aminosalicylic acid sodium in doses of 20 gm. daily combined with isoniazid in doses of 200 mg. daily is a very effective combination of drugs, both clinically and bacteriologically; it ranks with the most efficacious treatments so far studied, namely streptomycin in doses of 1 gm. daily plus isoniazid in doses of 200 mg. daily and streptomycin in doses of 1 gm. daily plus *p*-aminosalicylic acid sodium in doses of 20 gm. daily.

Hexamethonium Bromide and Cerebral Circulation.—The cerebral blood flow was estimated by a modification of the nitrous oxide method in six patients between the ages of 32 and 62 with arterial hypertension before and after administration of hexamethonium bromide. The mean arterial blood pressure fell by an average of 30%, but no significant change occurred in mean cerebral blood flow. The rate of cerebral oxygen utilization was measured in four of the six patients and showed no essential alteration. These findings imply that cerebral nutrition and metabolism will not ordinarily be impaired by the treatment of hypertensive patients with hexamethonium bromide, since cerebral vascular relaxation to a degree sufficient to maintain adequate cerebral blood flow and oxygen consumption accompanies reduction of blood pressure of the order obtained in the authors' patients. The possibility of an increased likelihood of cerebral thrombosis in patients in whom arterial disease favors the occurrence of such a complication cannot be considered to be eliminated by the present findings.

Journal of Pathology and Bacteriology, Edinburgh

66:1-334 (July) 1953. Partial Index

- *Medial Thinning in Atheroma. T. Crawford and C. I. Levene.—p. 19.
- Prolonged Generalized Vaccinia. G. F. M. Hall, A. C. Cunliffe and J. A. Dudgeon.—p. 25.
- Developmental Remnants in an Adult Human Kidney. F. R. Johnson and J. C. Anderson.—p. 39.
- Autoregulation in Experimental Liver Failure. P. C. Reynell.—p. 47.
- Pathology of Thyroid in Addison's Disease. J. C. Sloper.—p. 53.
- Factors Affecting Adrenaline Pulmonary Oedema. F. B. Wright and W. K. Whitten.—p. 63.
- *Spread of Prostatic Carcinoma to Bones. L. M. Franks.—p. 91.
- Pathological Findings in Cases of Polyarteritis Nodosa After Treatment with Adrenocorticotrophic Hormone. W. St. C. Symmers.—p. 109.
- Carotid-Body-Like Tumours of Jugular Bulb and Middle Ear. J. C. Gaffney.—p. 157.
- Effect of Systemic Disease on Adrenal Cortex of Child. H. B. Stoner, H. J. Whiteley and J. L. Emery.—p. 171.
- Carcinoma of Parathyroid Gland. S. Wray.—p. 231.
- Pathological Anatomy of Simple Pneumokoniosis in Coal Workers. A. G. Heppleston.—p. 235.

Medial Thinning in Atheroma.—Accounts of the histology of atheroma pay little attention to the media; it is usually passed over with the statement that it may show thinning, which is said to be a pressure atrophy due to compression by the overlying plaque. During a recent study of other aspects of aortic atheroma, Crawford and Levene noticed that even quite trivial plaques were associated with medial thinning. They feel that the idea that it is a pressure atrophy is not founded. They measured the amount of medial thinning at atheromatous areas from aortas and iliac arteries fixed (a) in the usual way and (b) in the distended state at arterial pressure. All but one of 134 plaques from undistended vessels and all 76 plaques from vessels fixed in distention showed definite medial thinning. In the distended vessels, the ordinary atheromatous plaques do not project into the lumen but lie in a depression in the media that may bulge outward. Only advanced plaques with recent thrombotic accretions project noticeably into the lumen—the familiar intimal bulge is a post mortem artefact. Physical considerations rule out pressure as the cause of the medial thinning, and the occurrence of outward bulging of the media indicates that something more than a disuse atrophy is concerned. The early and constant appearance of the medial thinning supports the contention that it is not a secondary result of the atheromatous process but an essential part of it, and the lesion as a whole is comparable to a shallow aneurysm partially or completely filled by the plaque of intimal thickening.

Spread of Prostatic Carcinoma to Bones.—Secondary deposits from malignant prostatic tumors are commonly found in the bones of the pelvis, the femurs, and the vertebral bodies, but there was no adequate explanation of this distribution of metastases until Batson in 1940 suggested that the vertebral venous system offered a possible path of spread. The aim of the studies described here was to confirm the fact that direct vascular communications exist between the prostate and the pelvic and spinal bones. Injections of a commercial barium suspension (Micropaque) of standard particle size (0.2 μ) were made into the deep dorsal vein of the penis of 15 adult male cadavers in the age range 43 to 75 years, using a pressure of

60 to 100 mm. Hg. About half a liter of suspension was used in each case. The bodies were then radiographed. The prostate, and in some cases the thoracic and lumbar vertebrae, the femurs, and the pelvic and other bones were then removed, fixed in neutral buffered formaldehyde (Formalin), cut into thin slices (2 to 4 mm.), filmed again with a crystallographic tube, and then examined histologically. A direct communication between the prostatic veins, the vertebral venous system, and the veins of the pelvic bones was confirmed by these methods. The distribution of bone metastases of prostatic carcinoma may be explained by spread along these veins. Other possible paths by which prostatic carcinoma may reach the skeleton are briefly discussed.

Lancet, London

2:947-1000 (Nov. 7) 1953

Objective Examination Papers in Medical Curriculum. D. C. Sinclair.—p. 947.

Resuscitation of Newborn with Intra-gastric Oxygen: (Akerren's Method). H. K. Waller and D. Morris.—p. 951.

Management of Postmaturity. D. Racker, G. H. Burgess and G. Manly.—p. 953.

"Reactions" to Dextran. A. W. Wilkinson and I. D. E. Storey.—p. 956.

Risks of Tonsillectomy. W. McKenzie.—p. 958.

Serum-Cholesterol Levels in Elderly People Living at Home. W. Hobson, A. Jordan and C. Roseman.—p. 961.

The Insulin Myth. H. Bourne.—p. 964.

Patent Vitello-Intestinal Duct with Associated Fistula and Prolapse. S. Howard, P. D. Moss and S. O'Donnai.—p. 968.

Traumatic Rupture of Bile-Ducts. J. H. M. Walker.—p. 969.

Clevedon Positive-Pressure Respirator. J. Macrae, G. D. W. McKendrick, J. M. Claremont and others.—p. 971.

Risks of Tonsillectomy.—According to McKenzie the chance of serious infection after tonsillectomy has nearly disappeared. Before the discovery of penicillin, otitis media was quite common after tonsillectomy in children, and many surgeons can remember a subsequent death from meningitis. Serious infection after tonsillectomy is now rare. The anesthetic risk also is less now, if the anesthetist is a specialist. The expert keep their patients under too light anesthesia. The author feels that the best anesthetic for tonsillectomy is thiopental (Thiopentone) sodium given intravenously combined with an intratracheal tube that delivers oxygen. Hemorrhage at operation is likely if there has been a recent infection, e. g., a sore throat and a cold, or if there has been a peritonsillar cellulitis at any time, because of the resulting peritonsillar fibrosis. Discussing the risks during recovery from the anesthetic, the author says that the patient should be on his side with his face visible, and both hands should be in front of the chest. If the patient is not on his side and the airway is not free, there is a risk of sudden death from asphyxia by the tongue falling back. If active bleeding is noticed just before complete consciousness returns, the patient should be brought back to the operating room at once. If a second operation has to be undertaken for hemorrhage, the best time is before recovery from the first operation. The correct treatment for hemorrhage within 24 hours is to tie the blood vessel while the patient is under general anesthesia. The only exception is in the case of a well-disciplined adult who may allow local pressure of a swab if he has been given a small injection of morphine first. The bleeding may sometimes come from the nasopharynx. If it has been serious, the blood vessel should be tied and a gauze pack left in the nasopharynx for 24 hours. Hemorrhage after the first 24 hours after operation is seldom serious; the usual cause is the separation of the slough from the tonsillar fossa. Since this may not take place for 10 or 12 days, secondary hemorrhage may be delayed for that length of time. The author also points out that a swab can easily be left in the upper part of the tonsillar fossa. To avoid this, he touches both fossae and the nasopharynx and then looks into them with the help of a head light.

The Insulin Myth.—Bourne shows that there is no sound basis for the opinion that insulin coma therapy counteracts the schizophrenic process in some specific manner and that its therapeutic effects are greatly superior to those obtainable by electroconvulsive therapy. The summary of a series of 376 schizophrenic soldiers, 186 of whom he followed up by letter

two years later, suggests that acute schizophrenic illnesses are becoming more benign. Of the 376, 84% were discharged, nearly all within nine months, as recovered or improved sufficiently not to need further hospital care, and the follow-up indicated no strikingly extensive or rapid relapse rate. For 156 patients treated with electroconvulsive therapy, the corresponding figure was 83%; of 15 treated with insulin coma, with or without electroconvulsive therapy, 9 resumed ordinary life, while for 205 untreated patients the figure was 88%. It should be added that in both treated groups a substantial number of psychoses subsided long after the treatment could have been responsible. Among the fallacies arising from the nature of insulin therapy the author mentions that the mode of selection of patients for insulin coma is biased. Reports are uniform that the best results are obtained where, without any treatment, the prognosis would be most favorable; so cases selected for insulin treatment are only those considered most likely to benefit—that is to say, to get better anyway. It is no wonder that an "impression" is so often met that the quality of remission after insulin is superior. It would be surprising if it were otherwise. Practically all reports comparing insulin favorably with electroconvulsive therapy omit how patients were chosen for either treatment; but they contain details from which this bias can be strongly suspected. The evidence for the value of insulin treatment is unconvincing.

Minerva Ginecologica, Turin

5:465-508 (July 31) 1953. Partial Index

Prophylaxis and Treatment of Thrombophlebitis with New Anticoagulant: Tromexan. D. Cazzola.—p. 465.

*Experimental Studies on Pathogenesis of So-Called Amniotic Fluid Embolism: Disease of P. E. Steiner and C. C. Lushbaugh. U. Narducci.—p. 477.

Influence of Amniotic Fluid on In Vitro Velocity of Clot Retraction and Possibilities of Utilizing This Property for Rapid Transfusion Technique E. Revelli.—p. 486.

Amniotic Fluid Pulmonary Embolism.—Pulmonary embolism caused by amniotic fluid is characterized by sudden shock during or immediately after a difficult labor. Only 43 cases of the disease (all fatal) have been reported since Steiner and Lushbaugh first described it in 1941. Macroscopic examination reveals pulmonary edema and microscopic examination a diffuse embolism in the pulmonary arterioles and capillaries in which amniotic fluid elements, such as meconium mucus, epithelial squamæ, and vernix caseosa, are present. The pathogenesis of the disease has not been clearly established, although it is known that the amniotic fluid enters the maternal circulation through the placental barrier because of an oversize fetus, or strong and tetanoid contractions of the uterus with excessive compression of the amniotic fluid, or laceration of the membranes. The mechanism of action of the amniotic fluid after its penetration into the maternal vascular system is still obscure. Some authors attribute great importance to the anaphylactoid reaction that follows the embolism, others to alteration of the blood coagulation mechanism because of the thromboplastin-like activity of the amniotic fluid, and others to anaphylaxis that follows a primary sensitization of the mother to the amniotic fluid. The author performed a series of experiments on rabbits and guinea pigs. Amniotic fluid alone even in massive doses and high concentrations did not cause diffuse pulmonary embolism and death in the animals. On the other hand, meconium alone even in low concentrations caused massive pulmonary embolism and death. A comparative experimental study revealed that the mechanism of action of meconium mucus embolism is parallel to that of fat embolism. The shock that occurs in the course of this syndrome is secondary to the embolism. The alterations induced on the blood coagulation mechanism by the thromboplastin-like activity of the amniotic fluid may aggravate the patient's condition. It may be that this embolism could be overcome if it occurred in patients in whom a difficult labor and a difficult puerperium had not impaired the circulation and the heart. The author states that the appropriate term for this disease should be "meconium embolism" rather than amniotic fluid embolism. Even more appropriate is the term Steiner and Lushbaugh's disease.

BOOK REVIEWS

Living with a Disability. By Howard A. Rusk, M.D., and Eugene J. Taylor. In collaboration with Muriel Zimmerman, O.T.R., and Julia Judson, M.S., Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center. Cloth. \$3.50. Pp. 207, with 281 illustrations. Blakiston Company (division of Doubleday & Company, Inc.), Garden City, New York; 575 Madison Ave., New York 22, 1953.

For several years the group of workers at the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center has been collecting descriptions of "self-help devices and gadgets that might aid disabled persons in the performance of the daily activities of life and work." These descriptions were then included in a series of publications that were made available to professional workers. This well-printed and profusely illustrated textbook includes these descriptions in one convenient volume, which can be used as a guide by rehabilitation workers or by the handicapped persons themselves. A major objective in treating any handicapped person is to assist him to become independent and self-sufficient, and the devices described in this book help to achieve this objective.

The descriptions are prepared in a style that is readily understandable, even for nonprofessional persons. This is the first textbook to provide detailed descriptions and sources of supply of so many modern aids toward rehabilitation of handicapped persons. It is divided into sections dealing with (1) taking advice, (2) getting three meals a day, (3) looking one's best, (4) keeping up appearances, (5) doing things differently, (6) getting around indoors and out, (7) conquest of the kitchen, (8) living with one's home, and (9) planning time to relax. Among the interesting devices described and pictured are special eating utensils that can be used by persons with severe weakness or deformity of the upper extremities; devices to aid handicapped persons in dressing themselves, in ambulation, and in attending to their toilet; apparatus to assist in writing, typing, telephoning, page turning, and reading; and modifications of wheel chairs, walkers, crutches, canes, supports, automobile controls, kitchens, kitchen and household equipment, and recreational equipment to permit their use by handicapped persons. This interesting book should be extremely useful in helping many disabled persons to self-sufficiency and independence. It is recommended to all physicians and health workers who deal with patients having serious physical disabilities.

Diseases of Women. By Robert James Crossen, A.B., M.D., F.A.C.S., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine, St. Louis. Tenth edition. Cloth. \$18.50. Pp. 935, with 990 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1953.

The first edition of this book appeared in 1907 and the ninth in 1941. The present editor has carried on the work of his late father. Two chapters in the previous editions have been deleted and several new ones added, notably one by Willard Allan entitled "Endocrine Relations Concerned in the Ovarian Cycle" and one by A. N. Arneson entitled "Radiation Therapy." The chapter on anatomy and physiology occupies one-eighth of the entire book. In spite of the fact that the author emphasizes the importance of the psychosomatic aspects of gynecologic problems in the preface, the section devoted to psychosomatic aspects of gynecology occupies only three and a half pages. The words psychosomatic, psychogenic, and psychotherapy do, however, appear in the discussions of puberty, dysmenorrhea, dyspareunia, menopause, pruritus vulvae, and sterility. The author devotes five pages and many illustrations to vaginal pessaries. Many of the illustrations are borrowed from other sources, and most of these are instructive and definitely worth reproducing. It is, however, ques-

tionable whether, in such a textbook as this, it is proper to reproduce illustrations that were prepared by pharmaceutical companies for use in their advertisements. These are minor criticisms of a book that is well written, abundantly illustrated, well printed, and up to the standards of the previous editions. It contains a vast amount of information valuable for both students and practicing physicians, and it will undoubtedly continue to occupy a high position among textbooks of gynecology.

Clinical Disorders of the Heart Beat. By Samuel Bellet, M.D., Director, Division of Cardiology, Philadelphia General Hospital, Philadelphia. Cloth. \$8.50. Pp. 373, with 164 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

Dr. Bellet is eminently qualified to write a book on any phase of heart disease, and this text is based on his own wide experience. It is both a reference and a textbook, which aims to interest and inform the internist, general practitioner, and cardiologist. It ably attains this objective. It is comprehensive, accurate, easily readable, profusely illustrated, and has ample references. It should prove of greatest value to the general practitioner. The cardiologist might find much in it that seems elementary. As a reference book, it compares favorably with others published recently. The chapters on premature contractions and auricular flutter are particularly comprehensive and simply treated. This book should prove useful to physicians in general practice, the internist, the cardiologist, and to the intern or resident.

The Nursing Mother: A Guide to Successful Breast Feeding. By Frank Howard Richardson, M.D., F.A.C.P., F.A.A.P. Cloth. \$2.95. Pp. 204, with illustrations. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, 1953.

This excellent book has been written specifically to aid the average mother in satisfactorily nursing her infant. Information included is designed to encourage breast feeding and to give the normal woman all the knowledge she needs to nurse her infant. The advantages of breast feeding, including its psychological values, are also presented. Information concerning nursing brassières, nipple shields, and other equipment used by nursing mothers is given. There are also specific instructions for the preparation of the breasts during pregnancy. The value of the book is enhanced by the inclusion of a comprehensive list of questions and answers. An effort is made to dispel the many superstitions and false notions about breast feeding. Every expectant mother and every mother with a newborn infant could read this book with advantage.

Diseases of the Liver, Gallbladder and Bile Ducts. Volume I and II. By S. S. Lichtman, M.D., F.A.C.P., Assistant Professor of Clinical Medicine, Cornell University Medical College, New York. Third edition. Cloth. \$22 per set. Pp. 608; 609-1315, with 223 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

As in the previous editions, Dr. Lichtman reveals his extensive knowledge of the literature on hepatic and biliary diseases. The wide acceptance of the previous editions attests the reliability of the author's material, which begins with the structure of the liver and ends with the treatment of biliary tract diseases. This book is a veritable encyclopedia of all the literature that has been published to date on diseases of the liver. The author critically comments on the contributions and justifiably takes exception to some of the older concepts that have been presented by previous students in this field. Each chapter has been enlarged, and the therapy has been put at the end of each chapter, wherever possible. In the chapter on cirrhosis of the liver, the author discusses its complications and the controversial aspects of the therapy. He concludes that corticotropin (ACTH) and cortisone are not of great value in the therapy of this disease. The student in this field, who would like to know what has been published on the whole problem of liver and gallbladder and bile duct disease, will find an

extensive bibliography in this outstanding reference book. It is a necessary addition to any medical library but particularly to that of the physician who deals with liver and biliary diseases in practice.

The Hypertensive Disorders of Pregnancy. By Ernest W. Page, M.D., Associate Professor, Obstetrics and Gynecology, University of California School of Medicine, San Francisco. Publication number 188, American Lecture Series, monograph in American Lectures in Circulation, edited by Irvine H. Page, M.D., and A. C. Corcoran, M.D. Cloth. \$3.75. Pp. 120, with 2 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois; Blackwell Scientific Publications, Ltd., 49 Broad Street, Oxford, England; Ryerson Press, 299 Queen Street, W., Toronto 2B, 1953.

This monograph has three main chapters: (1) clinical aspects, (2) physiological and biochemical changes in normal pregnancy and toxemia, and (3) etiology of toxemia. Page has modified the classification of toxemias recommended by the American Committee on Maternal Welfare. He divides them into two main groups: (1) specific toxemia of pregnancy, including (a) preeclampsia (nonconvulsive) and (b) eclampsia (convulsive); (2) clinical entities symptomatically related to toxemia, including (a) generalized edema of pregnancy (not accompanied by hypertension or proteinuria), (b) essential hypertension and pregnancy, with and without superimposed toxemia, (c) primary renal disease (any type) and pregnancy, with and without superimposed toxemia, and (d) post-toxemic recurring hypertension in multiparas. He maintains that eclampsia without hypertension or proteinuria is as much a misnomer as eclampsia without convulsions and that uncomplicated disturbances of salt and water balance during pregnancy should be segregated as a clinical entity distinct from preeclampsia. He emphasizes that severe toxemia is characterized primarily by a widespread damage to small blood vessels and that the parenchymal lesions are largely secondary to the vascular disturbance. The composite pathological picture of fatal eclampsia is not duplicated in its entirety by hypertensive disease alone nor by any other known disorder, although the individual morphological lesions may resemble those of some other disease.

Page also points out that the greatest controversy regarding the treatment of eclampsia has revolved about the choice of drugs, while the question of when and how to deliver the child of a woman with toxemia really constitutes the most important decision. The selection of drugs is not so important as the amount of the agents, the methods of using them, and the avoidance of measures that a knowledge of pharmacology and physiology warns us may be harmful. He then outlines his own management of patients with eclampsia. This book contains a vast amount of useful information about the hypertensive disorders of pregnancy. At the end is a well-selected bibliography, including many papers written by the author. This book is authoritative because Page has done much investigative work in this field. It is highly recommended to everyone interested in obstetrics, pathology, and internal medicine.

Nutritional Studies in Adolescent Girls and Their Relation to Tuberculosis. By Joseph A. Johnston, M.D., Pediatrician-in-Chief, Henry Ford Hospital, Detroit. Cloth. \$7.50. Pp. 320, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad Street, Oxford, England; Ryerson Press, 299 Queen Street, W., Toronto 2B, 1953.

This book is a compilation of research findings over a long period of time concerning the storage of nitrogen and its effect on the course of tuberculosis in adolescent girls. The author points out that negative balances or inadequate retention are frequently associated with failure to heal but that this cannot always be established. An extensive comparison of roentgenographic findings and of the nitrogen balance is recorded. The author calls attention to the many variables that must be considered, such as massiveness and repetition of infection, which cannot be accurately measured. Although not a large book, it represents a tremendous amount of work, including a discussion of the amounts of calcium and vitamin D necessary for normal storage in adolescent girls. The author concludes that the best way to prevent endogenous reinfection in tuberculin reactors is the insurance of normal retentions of nitrogen and calcium. This involves an adequate intake and consideration of all fac-

tors that influence their utilization. The book is well written, and includes many case histories, graphs, and tables. It should prove valuable to any physician who is interested in tuberculosis.

Emergency Surgery. Bernard J. Ficarra, A.B., Sc.B., M.D., supervising editor. Cloth. \$18. Pp. 1000, with 578 illustrations. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1953.

This monograph covers emergency surgery in a complete manner and is profusely illustrated. A number of the subjects discussed, however, do not appear to come within the province of emergency surgery. For instance, the management of acute low back pain is discussed in detail, even to the surgical treatment of a ruptured intervertebral disc. Persistent hiccup, although disturbing, could hardly be considered an emergency. These are minor defects; on the whole, the authors have prepared an excellent and very complete monograph, which should be in the library of everyone who treats emergencies and should be of value to all general practitioners. As an illustration of the completeness and progressive character of the monograph, excellent chapters on the management of the injured following atomic disaster and on emergency surgery of air casualties are included.

A Ray of Darkness. By Margiad Evans. Cloth. \$3. Pp. 191. Roy Publishers, 30 East 74th Street, New York 21, 1953.

The ray of darkness is the epilepsy that abruptly entered the life of the author in the middle of her career as an English writer and poet. The story is autobiographical, introspective, and beautifully written. She describes the subjective phases of her seizures with crystal-clear fidelity. Like Job, she searches for an understanding of this calamity, and, when prose fails, she has in reserve her delicately phrased poetry. As an exposition of what epilepsy can mean to a sensitive, honest, and courageous mind, the book is unique. Incidentally, it points out the difficulties that arise from divided medical opinions and ineffective therapy. Lacking a happy ending, the book nevertheless is food for the minds of those who enjoy fine writing or who can profit from reliving with a patient the experience of a devastating illness. Physicians, psychologists, medical social workers, and many of the reading (and thinking) public, including the millions who are related to epileptics or concerned with their care, will want to read this book.

Adventures in Physiology with Excursions into Autopharmacology. Selection from scientific publications of Sir Henry Hallett Dale, G.B.E., F.R.S., M.D. With introduction and recent comments by author. Cloth. \$19.50. Pp. 652, with illustrations. [The Macmillan Company, 60 Fifth Ave., New York 11; Pergamon Press, Ltd., 2, 3 & 5 Studio Place, Kinnerton Street, Knightsbridge, London, S.W.1, 1953.]

Of the 253 published works by this author, only 30 have been chosen for this volume. The papers chosen relate mainly to the two lines of research that have dominated the author's scientific activity: the action of epinephrine and acetylcholine and their relationship to the chemical phase in the transmission of the effects of nerve impulses and the action of histamine and the general effects of this compound as related to its contribution to local and general reactions, by which the organism as a whole and its separate tissues respond to various immunological, chemical, or physical assaults on the integrity of their living cells. In addition to the scientific papers, the volume contains a complete bibliography of the author's work from 1899 to the present and an admirable introduction which relates the body of the book to incidents in the author's scientific life. The papers here collected were written between 1906 and 1938, and they have been reproduced without alteration. The comments that Sir Henry has appended to each of the papers are especially helpful. These comments bring evidence and ideas from the past into relation with present knowledge and theories. It is hoped that in a second printing of this volume a short biographical sketch of the author will be included. This book is recommended to all who are interested in recent developments in physiology, pharmacology, and experimental pathology.

QUERIES AND MINOR NOTES

TOXICITY OF AMINOPHYLLINE

TO THE EDITOR:—Recently I treated a 3½-year-old boy for asthma and bronchitis by prescribing use of an Aminet (containing aminophylline, pentobarbital sodium, and benzocaine) suppository, child size. One-half hour after the first suppository was inserted into the rectum, the child became pale and limp. His heart rate rose to 140, and this condition persisted for three hours. It looked as though the child were going to die. He was placed in an oxygen tent and treated supportively. He responded promptly. I treated another child 2 years of age for a similar condition. This patient presented the same picture plus vomiting. His wheezing cleared up, but he died in spite of supportive therapy. An autopsy revealed no major abnormalities. Microscopic studies revealed a fulminating virus infection of the lungs. I feel that the aminophylline contributed to his demise. An initial dose of one-half a suppository would be safer. Have any cases been reported in which death could have been due to aminophylline used in this way?

Nerio W. Pioppi, M.D., Southbridge, Mass.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

ANSWER.—The suppositories in question contain 0.25 gm. of aminophylline, 0.05 gm. of pentobarbital, and 0.03 gm. of benzocaine. Severe reactions, with a few deaths, have been reported from the use of aminophylline intravenously, but no recorded instances are known of severe reactions to aminophylline other than vomiting, which is not uncommon when it is given by rectum in either suppository or liquid form.

When judged by the adult dose, which is usually given as from 0.25 to 0.50 gm., a dose of 0.25 gm. for a child of 3½ years is a large dose, and it is not impossible that, if the aminophylline were absorbed rapidly, untoward symptoms might result. It is possible that the severe reactions in both of these cases were caused by aminophylline. This is, however, not proved. Severe sensitivity to cocaine derivatives is not uncommon, and it could be that the trouble in these patients was due to benzocaine. An initial dose of one-half or two-thirds of a suppository is certainly safer, and probably sufficient, for a 3-year-old child. If the reactions in these patients were caused by aminophylline, they were probably due to drug toxicity; if caused by benzocaine, to allergy to the drug.

ANSWER.—It is highly doubtful that the reactions described by the inquirer were due to allergy. If it were an allergy it would be most likely due to the base in which the aminophylline is incorporated. In the first case described the symptoms are most suggestive of cardiac excitatory effects from the aminophylline. The second case apparently presented a picture of cerebral excitation. Death due to intravenously administered aminophylline has been described. Since rectal administration may also produce rapid absorption, the similar toxic effects are also possible. The inquirer's suggestion that "an initial dose of one-half a suppository would be safer" is a most practical one.

RELIABILITY OF THE HAEMOSCOPE

TO THE EDITOR:—How reliable is the Haemoscope?

E. D. Huntington, M.D., Chicago.

ANSWER.—The Haemoscope is an electric photometer for determining the number of cells suspended in solution by measuring the scattered light. The usefulness of this instru-

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ment is limited by the fact that the count is affected by the cell size and also by the cell shape. At present it is not known how serious this defect may be in evaluating red blood cell counts in pathological conditions. The most modern instrument compensates for variations in cell size over a limited range, i. e., from 7.2 to 8.8 μ average diameter. A comprehensive appraisal of the Haemoscope may be found in the *American Journal of Clinical Pathology* (23:731-745, 1953). An editorial in the same issue on page 800 also deals with this subject.

CORONARY DISEASE AND RESUSCITATORS

TO THE EDITOR:—I encountered a case of recurrent coronary occlusion in a 65-year-old man, who was given oxygen by a Pulmotor apparatus for 10 minutes by a police emergency squad prior to the arrival of a physician. The patient died six minutes later. Autopsy showed there was good oxygenation but a tremendous over-insufflation of the lungs, which bulged well into the mediastinum. The heart showed coronary stenosis and an old myofibrosis. Has maladministration of oxygen by a Pulmotor with excessive oxygen tension been known to precipitate death? M.D., New York.

ANSWER.—The use of resuscitators in cases of acute coronary occlusion has become rather common practice. It has been reported that older devices such as the one sold as the Pulmotor did develop pressures that were felt to be excessively high. The modern resuscitator automatically provides for inhalation and exhalation. The Council on Physical Medicine and Rehabilitation of the American Medical Association has established minimal requirements for the acceptance of resuscitators and inhalators. Such devices as accepted by this Council conform to these requirements: The positive pressure in such devices at the face mask may not exceed 20 mm. Hg and the negative pressure may not exceed 9 mm. Hg. It is doubtful that apparatus that conforms to the Council on Physical Medicine and Rehabilitation's minimal requirements when used properly could be a factor in precipitating death in the situation mentioned in the inquiry. Some modern resuscitators are built to provide active inspiratory and expiratory phases through the application of positive and negative pressures alternately. Other units provide an active inspiratory phase due to the positive pressure they develop, and passive expiration occurs at the end of the positive pressure phase.

USE OF TOWELS ON EDGES OF INCISIONS

TO THE EDITOR:—Has any investigative work been done on use of skin towels on the edges of surgical incisions during surgical procedures? Some persons say that, when these towels become saturated with blood, they readily transmit organisms. Are there any references available to work that has been done to test this practice?

John C. Meyers, M.D., San Francisco.

ANSWER.—The use of towels on the edges of surgical incisions is an apparently undocumented convention. Originally the towels were moistened with germicide and presumably contributed to asepsis (Von Bergmann, E.: *Jahrb. klin. Chir.* 1:147, 1889). The clinical observation of blood oozing through a towel fixed to the skin edge or bile staining the skin beneath such a towel suggests the bacteriological folly of using the conventional dry towel.

Pads made by interleaving a sheet of cellophane are used (Lahey, F. H.: *J. A. M. A.* 104:1990 [June 1] 1935) to protect the skin or to wall off the viscera. A bactericidal vinylite resin has been described that is applied in the operating room to form a film that adheres to the skin (De Bakey, M.; Giles, E. J., and Honold, E.: *Surg., Gynec., and Obst.* 74:499, 1942) and through which the incision is made. Studies showed that bacteria

were recoverable from the cut edge of the skin in 16.6%, the surfaces of the film remaining sterile. Sterile vinylite drapes are commercially available (Gerspacher; T. S.; Fowler, H. D., and Rolf, D. E.: *A. M. A. Arch. Ophth.* 45:673 [June] 1951) with adhesive areas for attachment to the skin. Because the plastic films are impervious, use of these techniques is a logical means for excluding the skin or isolating septic portions of a surgical procedure as use of rubber gloves.

PNEUMOTHORAX

TO THE EDITOR:—*What is the composition of the oil and wax formula used intrapleurally in cases of pneumothorax?*

M.D., Michigan

ANSWER.—The most commonly used preparation for oleothorax therapy is mineral oil that contains 1 to 5% Gomenol (a partially volatile oil distilled from the leaves of a tree [*Melaleuca viridiflora* Brong. and Gris.] that grows in countries around the Indian Ocean). Other oils that have been used include paraffin oil, olive oil, and cottonseed oil, all of these with or without added Gomenol, 1 to 10%. A 2 to 10% solution of iodine in vegetable oil (Iodipin) was extensively used in Germany at one time. This form of therapy in the treatment of pulmonary tuberculosis has been practically abandoned in most institutions because of the high rate of complications and the advent of improved methods of treatment, including pulmonary resection.

ELECTIVE STERILIZATION OF WOMAN

TO THE EDITOR:—*The surgical staff at a hospital recognizes multiparity as an indication for elective sterilization if the woman is over 20 years of age and has at least four living children and if she and her husband request the procedure in writing. A sharp difference of opinion has arisen over the best procedure for sterilization. One group feels that a tubal ligation done a day or so after delivery is the only acceptable procedure. A second group practices salpingectomy rather than simple ligation because of the occasional failures encountered with any type of ligation. A third group has the patient return six or seven weeks after delivery for a total abdominal or vaginal hysterectomy. An opinion would be appreciated as to which of the three procedures outlined above should be used in good risk patients.*

M.D., New York.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—If the policy of the private hospital as reported here is not against the law of the state in which it exists, written consent of the husband and wife should be sufficient. The only question remaining to be explored is the type of procedure that it is best to employ. From the standpoint of permanence and simplicity, bilateral salpingectomy would appear the most reliable. There would seem to be no persuasive reason why hysterectomy should be resorted to. The possibility of predecease of the husband while the wife is still in the childbearing age must be considered. In that case, if the wife should remarry, her second husband might insist on her bearing his own children. Under such circumstances, a prior bilateral salpingectomy would be fatal to the hopes of this second marriage. With this contingency in mind, it might be wiser to have chosen a simple tubal ligation in the first place, since such a procedure usually establishes a situation that may be reversed if the circumstances require it.

ANSWER.—The simplest and safest procedure for sterilization after delivery is tubal ligation within 24 hours. This operation can easily be done under direct infiltration or intravenous anesthesia through a very small abdominal incision below the umbilicus. The Pomeroy procedure is the most certain method of tubal operation, because the incidence of failure is about one in 200 cases. This operation does not prolong the patient's hospital stay. In view of the excellent results of the Pomeroy method of sterilization and its simplicity and rapidity, there is no need to perform bilateral salpingectomy, which can be a bloody procedure immediately after delivery. Likewise, it is

not justifiable to have a patient who has several children at home return for another hospital sojourn even for a simple procedure even if the expense is left out of consideration. The removal of a uterus abdominally or vaginally is a major procedure and carries some risk, although it is slight. Even if there were no risk of mortality or morbidity, a hysterectomy should not be carried out for the sole purpose of sterilization in a young woman. The only time a normal uterus may be removed for purposes of sterilization is at the time of cesarean section in a woman who has a large family and is near the end of her reproductive career.

ONE, HIGHBALL AND DUODENAL ULCER

TO THE EDITOR:—*I am 50 years of age and for several years I have enjoyed a scotch and soda before dinner. For three weeks I had indefinite, vague, no-relation-to-meals gastrointestinal discomfort. A gastrointestinal series showed a definite small 2 mm. projection on the greater curvature of the duodenal cap, which the roentgenologist states is probably a small duodenal ulcer. Does the relaxation from one predinner drink overbalance the potential harm supposedly caused by alcohol?*

M.D., New York.

ANSWER.—A patient with an active duodenal ulcer should not have scotch and soda before dinner, or before a meal, regardless of well-being that is brought about. The stimulation of the parietal cells of the stomach by the alcohol would more than outweigh the sense of well-being that would result from the presumed "quieting down" of the emotional household.

AMAUROTIC IDIOCY

TO THE EDITOR:—*In the Queries and Minor Notes of THE JOURNAL, Oct. 31, 1953, page 894, is a question about the possibility of recurrence of amaurotic idiocy (Tay-Sachs disease) in future children of a couple who have already had one such child. The statement is made that "Little is known regarding the relative importance of the sperm and the egg in the transmission of human traits." Amaurotic idiocy is currently considered to be due to a recessive gene, and thus an affected person must receive this gene from both parents. The chances are one in four that any subsequent child of this couple will have amaurotic idiocy. If artificial insemination with a nonrelated Jewish donor is carried out, the chance for the infant having the disease is probably less than one in 500; if a non-Jewish donor is used, then the chance becomes exceedingly small.*

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TO THE EDITOR:—*Your consultant's answer to the query on infantile amaurotic idiocy (J. A. M. A. 153:894 [Oct. 31] 1953) deserves amplification. There is good evidence that this disease shows simple recessive inheritance (Slome, D.; J. Genetics 27:363, 1933). Since the family in question has had one affected child, both parents must carry the recessive gene and the chances of any subsequent child developing the disease are one in four. Furthermore, the diseased child must receive the pathological gene through both the egg and the sperm.*

With regard to the question of artificial insemination, if the disease frequency in Jews is of the order of 1 in 10,000 (probably an over-estimate), the risk that a child of this mother sired by a man unrelated to the parents would develop this disease is about 1 in 400. If the donor were non-Jewish, the risk would be appreciably lower than this.

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SPINAL ANESTHESIA IN CESAREAN SECTION

CRITICAL ANALYSIS OF ABOUT 1,200 CASES WITH NO MATERNAL MORTALITY

Donald W. deCarle, M.D., San Francisco

Although employed in cesarean section throughout the country since 1941, spinal anesthesia was not given extensively for this procedure at Children's Hospital in San Francisco until 1947. Since then, however, it has practically replaced all other forms of anesthesia for cesarean section at this institution. As shown in table 1, there were 13,508 deliveries at Children's Hospital during the six year period from 1947 through 1952. These included 1,427 cesarean sections, of which 1,236 were performed under spinal anesthesia, for an incidence of 86.61%. The shift to spinal anesthesia can be attributed only to some very definite advantages, which the majority of the obstetric surgeons of this staff recognized. The more important of these are, first, the complete absence of all irritating drugs and the untoward complications associated with inhalation anesthesia.¹ In the 18 months prior to January, 1947, one patient died from inhalation of vomitus, following inhalation anesthesia, and three others required aspiration by bronchoscope to relieve complications from the same cause. Second, the rapidity with which it takes effect gives it added advantages, even over local anesthesia, in the presence of fetal distress. Third, the almost complete absence of any detrimental effect upon the infant makes it particularly desirable in the presence of prematurity. This conclusion is shared by others, including Eastman.² Downing³ has shown a 25% decrease in fatality among premature infants by the use of caudal anesthesia. Masters and Ross⁴ found an even higher rate with conduction anesthesia in general.

Prematurity is not unusual in cesarean section. The presence of bleeding from placenta previa or premature separation of the placenta; the onset of premature labor, either with or without the rupture of membranes in patients for repeated or elective section; and the presence of a progressive toxemia results frequently in the delivery of a premature infant. Errors in estimation of the fetal age also accounts for a substantial number of premature infants. However, a more accurate method of estimating

the age of the fetus in utero, using roentgenogram, was recently demonstrated by Adams; this should be helpful in obviating this latter group. A study of data based on a division of these premature infants into two groups, those who survived premature delivery complicated by such factors as early labor and those who were delivered prematurely because of faulty estimation of fetal age, reveals that the mortality in the first group was high (21 deaths among 111 infants). The pediatric staff believes, however, that this rate would have been higher had any form of general anesthesia been used. In the second group only two neonatal deaths occurred. A fourth, and one of the most important advantages of spinal anesthesia, is the uniform excellent muscular relaxation it creates. This is definitely advantageous in any type of abdominal approach but is particularly suitable for the low transverse or Pfannenstiel incision. Used for 351 of our patients, the Pfannenstiel incision, as opposed to the midline incision, lends itself especially well not only to the low cervical uterine incision but also to any of the extraperitoneal procedures (of which there were 39 in this group). It has been previously shown that one of the chief advantages of this low transverse incision is the still further reduction in the amount of spinal anesthesia required.⁵ This, in turn, results in widening the margin of safety of the low spinal type of anesthesia for cesarean section.

METHOD OF ADMINISTRATION

The selection of the drugs used for spinal anesthesia and the technique of their administration is subject to considerable variation in different parts of the country. Credit for a large part of the favorable results obtained in this particular group can be attributed to a very definite and, in so far as possible, uniform routine. A combination of procaine and tetracaine (Pontocaine) hydrochloride as a single injection was given in each of the 1,236 cases. By 1947, when the first of this group was delivered, it was widely known that the pregnant woman, due to the

Read before the Section on Obstetrics and Gynecology at the 102nd Annual Meeting of the American Medical Association, New York, June 2, 1953.

1. Adriani, J.: *Techniques and Procedures of Anesthesia*, Springfield, Ill., Charles C Thomas, Publisher, 1947, p. 208.

2. Eastman, N. J.: Prevention of Fetal Anoxia, *Am. J. Dis. Child.* 76: 661-665 (Dec.) 1948.

3. Downing, G. C.: Caudal Analgesia in Private Obstetrical Practice: Review of 2,139 Cases, *West. J. Surg.* 59: 19-24 (Jan.) 1951.

4. Masters, W. H., and Ross, R. W.: Conduction Anesthesia: Protection Afforded Premature Infant, *J. A. M. A.* 141: 909-912 (Nov. 26) 1949.

5. deCarle, D. W., and Durfee, R. B.: Pfannenstiel Incision for Caesarean Section, *West. J. Surg.* 56: 360-364 (June) 1948.

increased intra-abdominal pressure, was particularly vulnerable to spinal anesthesia in amounts ordinarily employed in surgery in general. Therefore, no one of these patients received more than 50 mg. of procaine or 10 mg. of tetracaine. Many received less, especially when the transverse abdominal incision was employed. As little as 35 mg. of procaine and 5 mg. of tetracaine was found to be adequate in many of these patients.

TABLE 1.—*Cesarean Sections at Children's Hospital 1947 to 1952 (Inclusive)*

	Total Deliveries	Cesarean Sections	Percentage	Spinal	General	Caudal	Local
1947	2,460	251	10.2%	183	51	11	6
1948	2,287	283	12.3%	248	18	10	7
1949	2,286	216	9.5%	195	9	11	1
1950	2,236	209	9%	193	8	7	1
1951	2,144	224	10.4%	199	17	7	3
1952	2,095	244	11.6%	219	15	7	2
Totals	13,509	1,427	10.54%	1,238	118	53	20

The second important step in the successful administration of spinal anesthesia was the preparation of an intravenous route by the anesthesiologist. This was essential for, first, the routine intravenous administration of fluids, namely, 5% glucose in this group, in amounts up to 1,000 cc.; second, the injection of oxytocics; third, the administration of further anesthesia when necessary; and fourth, as an immediately available avenue for blood transfusion. The fact that hemorrhage is the number one killer today lends further importance to this procedure. Although spinal anesthesia provides increased uterine tone with usually diminished blood loss, every obstetric patient in whom surgery was contemplated at Children's Hospital was treated as a potential emergency. A routine check for anemia was required for every patient on entrance. Crossmatching was done whenever it was deemed necessary by the surgeon-anesthesiologist team. Table 2 gives the estimated blood loss among the patients in this group. It also includes the blood transfusions given. Out of 178 of these transfusions, one patient alone, with lower nephron nephrosis, received nine units of whole blood. At least one and usually two emergency units of type O-Rh negative blood were constantly available. Only one severe transfusion reaction occurred in the entire group in which 135 patients were reported as Rh negative.

Still another important responsibility of the anesthesiologist was the constant observation of the blood pressure for any marked change. Sudden hypotension ("spinal shock") occurred frequently in this particular group where spinal anesthesia was given as a single dose. In order to avoid the side-effects of such complications, one or more of the vasopressor agents was given in minimal dosage almost routinely to maintain or restore the blood pressure to a safer level. Of equal value was the immediate and rapid delivery of the infant in a large majority of those patients whose blood pressure was unstable. The time element varied from 4 to 12 minutes, depending on

the operator. This not only protected the infant from anoxia in the presence of such a marked fall in blood pressure but reduced immediately the strain on the maternal heart. Some 46 of the patients in this group, with marked hypotension preceding the administration of the anesthesia, were also carried through surgery by this method without any serious complication.

In the occasional patient, a marked hypertension occurred. Therefore, extreme caution in the administration of the various oxytocics was observed when a vasopressor agent had been previously given.⁶ The procedure of giving oxytocin (Pitocin) directly into the uterine musculature was abandoned except in 11 of these patients. However, two patients to whom an intravenous injection of ergonovine (Ergotrate) maleate was administered after ephedrine therapy showed abrupt rises in systolic pressure to over 200 mm. Hg. Headache with some retching was noted. Because of the increased danger with such a reaction, special care was used in the supervision of the 48 patients in whom systolic pressure was over 140 mm. Hg before the anesthetic was given.

MATERNAL MORTALITY

The incidence of cesarean section, as that of maternal mortality, varies considerably in different sections of the country. In 1938, Bell⁷ reported the findings of the Maternal Mortality Committee of the San Francisco Gynecology Society, for the years 1932 through 1938. Included in these were the statistics on the number of cesarean sections done in the San Francisco hospitals collectively and individually. As shown in table 3, there were 2,592 sections done in the San Francisco hospitals during that time for an incidence of 5.63%. Of these, 20% were classical. There was a total of 49 maternal deaths. Sepsis was the leading cause, followed in turn by toxemia, hemorrhage, and embolism. The last group of figures comprise those from which the present study was taken. As shown here, 1,427 cesarean sections were performed at Children's Hospital from 1947 to 1952, inclusive, for an incidence of 10.56%. There were three fatalities during this time, following cesarean section, for an incidence of 0.21%. However, two of these were operated upon in the presence of a spontaneous subarachnoid hemorrhage.⁸ The third patient died as the re-

TABLE 2.—*Estimated Blood Loss and Transfusions*

	Estimated Blood Loss			Blood Transfusions		
	500 Cc.	1,000 Cc.	1,500 Cc.	500 Cc.	1,000 Cc.	1,500 Cc.
1947	44	8	0	23	0	1
1948	49	5	0	32	1	2
1949	22	2	1	22	1	0
1950	26	2	1	24	5	0
1951	34	4	1	18	4	1
1952	47	4	1	42	1	1
Totals	222	25	4	161	12	5

sult of an afibrinemia, following an extensive premature separation of the placenta. All three were delivered under general or local anesthesia and therefore are not included in this group under consideration.

RESULTS OF LOWERED MORTALITY

A comparative study of these statistics brings us to some definite conclusions. First, although the incidence of cesarean section was far less 15 years ago, the maternal

6. Greene, B. A., and Barcham, J.: Cerebral Complications Resulting from Hypertension by Vasopressor Drugs in Obstetrics, *New York J. Med.* 49: 1424-1426 (June) 1949.

7. Bell, T. F., and others: Maternal Mortality in San Francisco, Oakland, and Berkeley, Calif., 1932-1938, Inclusive, read before the American Congress on Obstetrics and Gynecology, Cleveland, Sept. 11-15, 1939.

8. deCarle, D. W.: Pregnancy and Cerebrovascular Complications, *West. J. Surg.* 57: 181-191 (May) 1949.

mortality was infinitely higher. Second, the greatly lowered incidence during 1947 to 1952 could have been brought about only by certain very definite factors. The most important of these can be summarized as follows: The training of personnel in surgical and anesthetic procedures has improved; there has been an increase in the use of newer surgical techniques such as low transverse uterine, extraperitoneal, and transverse abdominal approaches; improved anesthetic agents are being administered more competently by better trained personnel applying increased knowledge of the physiology of water balance, vasopressor substances, and oxytocics; the handling of whole blood has improved due to the growth of blood banks, revision of blood groupings, and discovery of the Rh factor; sulfonamides and antibiotics add significantly to the control of infection; and methods of roentgenogram pelvimetry and soft tissue diagnosis has been improved.

Third, these factors in turn, by lowering the fetal and maternal mortality in cesarean section, have contributed lessened mortality for mother and child in general. Lastly,

number for the same patient is possible. Data accumulated over the six-year period from 1947 to 1952 reveal that 331 women had a second cesarean section; 97, a third; and 16, a fourth. It is evident that repeated sections can no longer be considered unusual. In the entire group reported by Bell⁷ in 1938, there were only five repeated sections. On the other hand, in the present group, as shown by table 4, the repeated sections actually outnumbered all other indications, especially in the last three years, with a total of 444. With these figures in mind, the marked increase in the incidence of cesarean section in a private hospital such as Children's is more easily understandable.

Further study of table 4 shows other factors that may have affected the incidence of cesarean section in this group. Among these, rheumatic heart disease should have no place. Only when there is a definite obstetric indication should cesarean section be done in such a patient and then never under spinal anesthesia. Trial labor, as shown by Hunt,¹³ is extremely valuable in the evaluation of certain so-called obstetric imponderables. There were

TABLE 3.—Incidence of Cesarean Section

Total Deliveries 1932-1933	Cesareans		Type of Operation					Deaths	
	Number	Per Cent	All San Francisco Hospitals					Number	Per Cent
			Classic	Low Cervical	Porro	Extra Peritoneal	Not Reported		
46,011.....	2,592	5.63%	531 (20%)	1,079 (65%)	57 (2%)	12 (0.5%)	312 (12%)	49	1.89%
1932-1938									
Five Leading San Francisco Hospitals									
2,468.....	253	10.25%	11	223	4	7	8	3	1.18%
3,007.....	180	4.99%	3	175	2	0	0	2	1.11%
5,294.....	173	3.26%	4	33	1	0	132	1	0.57%
5,330.....	372	6.97%	49	310	7	0	6	5	1.34%
1,576.....	153	9.70%	59	87	2	0	5	8	5.22%
4,292.....	393	9.15%	50 (14%)	332 (81%)	1	4 (1%)	0	5	1.27%
Children's Hospital, San Francisco									
13,508.....	1,427	10.56%	13 (0.9%)	1,350 (99%)	25 (1.7%)	39 (2.7%)	0	3	0.21%
								1947-1952	

in so doing, they have widened the indications for this procedure, thereby increasing the incidence of cesarean section. Harris and his group⁹ have arrived at a similar conclusion in a comparative study of two groups of cases taken from one of the Los Angeles hospitals. Although their incidence of cesarean section was 9.79%, they had 0.05% maternal mortality from cesarean section as opposed to 0.08% among the patients delivered from below. Lull,¹⁰ in 1943, made a similar comparison, as did Tollefson¹¹ with an 11% cesarean incidence. In a more recent study Lull and Ullery,¹² in whose study the incidence was 7.2%, explained the increase in cesarean section upon a definite trend toward this procedure in the presence of a toxemia, placenta previa, and premature separation of the placenta. Another reason given by them is the changing attitude toward repeated sections. In the old classical technique, a second section was thought to be more than sufficient in any one patient. In many instances, the patient was delivered from below, following a previous section, sometimes with serious results. The low cervical approach, whether extraperitoneal or transperitoneal, combined with the administration of antibiotics and whole blood has so improved the technique and diminished the risk of repeated sections that an increasing

279 such trial labors in this group that were considered entirely satisfactory. There were another 31 that were preceded by attempted induction of labor with very unsatisfactory results. Probably, a spontaneous labor could have resulted in delivery from below of a substantial percentage of these patients.

POSTOPERATIVE COMPLICATIONS

The postoperative complications that occurred in these patients were of two types: those that were the direct result of surgery and those complications that arose from the anesthesia itself. In three patients of the first group postoperative phlebitis developed; acute distention with early signs of obstruction developed in five; two had pneumonitis, and one patient had lower nephron nephrosis. The diagnosis for another patient whose systolic

9. Harris, J. M., and others: Case for Reevaluation of Indications for Cesarean Section, Based on Analysis of 2,617 Consecutive Cesarean Sections, *West. J. Surg.* 59: 337-346 (July) 1951.

10. Lull, C. B.: Survey of Cesarean Sections in Philadelphia: Comparison Between 1931 and 1941, *Am. J. Obst. & Gynec.* 46: 314-321 (Aug.) 1943.

11. Tollefson, D. G.: Certain Aspects of Cesarean Section, *J. Southern M. A.* 46: 290-295 (March) 1953.

12. Lull, C. B., and Ullery, C.: Continuous Spinal Anesthesia in Cesarean Section, *Am. J. Obst. & Gynec.* 57: 1199-1209 (June) 1949.

13. Hunt, A. B.: Test of Labor: Evaluation of Its Present Worth, *J. A. M. A.* 147: 999-1004 (Nov. 10) 1951.

blood pressure was 50 mm. Hg or less for 24 hours following surgery was adrenal apoplexy. In two patients, dehiscence occurred in the wounds, following midline incisions. One patient who had had a Pfannenstiel type of incision had to be returned to surgery to be evacuated of a large subfascial hematoma. Rupture of the uterus occurred in none of these patients. Only two patients in this group who were operated upon were allowed to deliver from below in subsequent pregnancies.

In the second or postspinal group of patients, none of the more serious neurological complications so frequently described in the literature¹⁴ developed. Four patients, however, complained bitterly of persistent backaches at the site of the injection. All but one of these had recovered satisfactorily by the end of six weeks. While incontinence was only transitory in 1 patient, 3 required retention catheters, and 23 others required repeated catheterization. Aside from these, the most serious kidney complication in the entire group followed a general rather than a spinal anesthesia.

TABLE 4.—Indications for Cesarean Section

	1947	1948	1949	1950	1951	1952	Total
Cephalopelvic disproportion.....	78	119	91	45	43	51	427
Repeated	44	73	51	83	94	99	444
Placenta previa.....	6	3	2	6	9	11	37
Abruptio placenta.....	7	7	5	6	3	14	42
Toxemia							
Preeclampsia	10	14	5	9	3	2	43
Eclampsia	1	1	0	1	1	0	4
Pelvic contraction.....	12	8	6	7	6	3	42
Cervical dystocia.....	4	5	4	4	3	1	21
Uterine inertia.....	1	5	2	6	8	4	26
Fetal distress.....	4	4	4	2	3	1	18
Pelvic tumors.....	4	1	2	2	7	3	19
Fetal Dystocia							
Breech	14	12	3	4	8	6	47
Face	0	0	0	3	2	0	5
Twins	0	2	0	0	1	0	3
Transverse	2	0	2	0	2	2	8
Deformities	4	0	0	0	0	1	5
Elderly primipara.....	2	2	9	4	1	0	18
Heart disease.....	1	0	0	1	0	1	3
Diabetes	0	1	0	0	1	0	2
Previous history.....	5	1	0	1	4	1	12
Previous myomectomy.....	0	2	0	1	1	0	4

Eighteen patients complained of moderately severe headache, and in 45 others the headache was definitely severe, for an incidence of 5.09%. According to Thorsen,¹⁵ patients with spinal headaches should be divided into three separate groups for purposes of treatment. Least important of these is the so-called miscellaneous group in whom headache may arise from multiple causes and should respond fairly satisfactorily to the ordinary means of treatment. The first 18 patients probably belonged to this group. The other 45, however, should have been separated into those with headaches due to decreased cerebrospinal pressure resulting from loss of cerebrospinal fluid, and those with headaches associated with an increased cerebrospinal pressure resulting from

a combined closure of the dural puncture wound and stimulation of the choroid plexus. Because of the associated dehydration, the first condition reportedly responds well to the administration of a hypotonic saline solution, 0.5% normal. The second responds well to administration of a hypertonic saline solution, according to Thorsen.¹⁵ Unfortunately, these 45 patients, with few exceptions, were treated with a variety of drugs with very indifferent and unsatisfactory results.

It is worthy of note that the results of Wassermann tests were positive for only one patient, and here the cerebrospinal fluid was negative. In this regard, the department of anesthesiology urges that the obstetrician be familiar with not only the serology but also the history of any central nervous system disease present in his patient. This knowledge, they feel, may help avoid serious trouble for a busy anesthesiologist in an emergency involving such a patient.

COMMENT

Beginning in 1941, there was a definite shift to spinal anesthesia, according to Potter and Pender.¹⁶ This trend increased rapidly until 1943, when, according to these authors, 84% of all sections were done under this anesthetic. Since 1945, however, the number in all areas of surgery where spinal anesthesia has been used has dropped gradually. This may be attributed to the controversial position held by spinal anesthesia and the adverse publicity given it. The technique of spinal puncture unfortunately is comparatively simple, even for the untrained. Probably the greatest single cause of disastrous results from the use of spinal anesthesia is due to this very simplicity. There is danger when this form of anesthesia is administered by someone who is unfamiliar with the physiology of the drugs employed and the contraindications to their use and who is not able to recognize the early signs of serious trouble. Only administration by properly trained personnel can ensure successful results; this has been pointed out by Greenhill.¹⁷ Needless to say, all anesthesia used in our study was given by trained physician-anesthesiologists.

It is indeed unfortunate that a procedure as valuable as spinal anesthesia has become a paradox in medicine. To the obstetrician, it has distinct advantages in cesarean section as well as in vaginal delivery. The pediatrician states unequivocally that it surpasses any other type of anesthesia for the safety of the infant in cesarean section. This is especially true in the premature delivery where fetal anoxia is reduced to a minimum. On the other hand, even to the trained anesthesiologist, spinal anesthesia presents certain difficulties. The smaller and safer dosage, the constant improvement of the drugs used, and the improved techniques for their administration are lessening these difficulties.

The law, the public, and, at times, even the neurologist have placed the anesthesiologist and the obstetrician in the position of having to prove that spinal anesthesia is not the causative factor of certain untoward complications, rather than the reverse. Unless something is done, conduction anesthesia in general, at least in the state of California, may have to be discarded. This, in turn can mean an immediate increase in fetal mortality, especially in the premature group. The same would be true of ma-

14. Bergner, R. P.; Roseman, E.; Johnson, H., and Smith, W. R.: Severe Neurological Complications Following Spinal Anesthesia: Report of 6 Cases, *Anesthesiology* 12: 717-727 (Nov.) 1951.

15. Thorsen, G.: Neurological Complications After Spinal Anesthesia, *Acta chir. scandinav.* (suppl. 121) 95: 1-272, 1947.

16. Potter, J. K., and Pender, B. H.: Anesthesia for Caesarean Section, *Anesth. & Analg.* 30: 35-40 (Jan.-Feb.) 1951.

17. Greenhill, J. P.: Shall Spinal Anesthesia Be Used In Obstetrics? *Anesthesiology* 11: 283-288 (May) 1950.

ternal mortality. I believe that this can be done only by, first, preventing the use of conduction anesthesia by the untrained; second, by increasing the number of well-trained physician-anesthesiologists; and, thirdly, by alerting the public by publishing statistics of the kind presented here.

SUMMARY

An analysis is presented of 1,236 cases in which spinal anesthesia was given successfully for cesarean section with no maternal mortality. The advantages and disad-

vantages of the technique employed are discussed. Justification for the high incidence of cesarean section in this group is offered. Spinal anesthesia in the hands of the trained anesthesiologist is stated to be, in the opinion of the authors, the best form of anesthesia to date for both mother and infant in cesarean section. The importance is stressed of making every effort to educate the public to its advantages as long as the margins of safety can be constantly increased.

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ELECTIVE APPENDECTOMY AT THE TIME OF CESAREAN SECTION

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The story of appendicitis is a proud chapter in the history of medicine. In 1935, the disease took 16,142 lives in the United States. In 1940, the death rate from this cause was 12,999, and in 1945 the mortality dropped to 6,697. In 1950, 2,897 lives were lost from the disease. Comparison of these statistics is even more striking when it is observed that in the United States in 1935 one person died from appendicitis every 33 minutes, or a total of 44 a day, while in 1950 one died every three hours or eight persons a day. The mortality rate over a 15 year period, 1935 to 1950, dropped 85%. The rapid decrease in the death rate from appendicitis is due to: (1) improved medical care and surgical technique; (2) discovery and use of antibiotics; (3) nationwide health education that has caused an increasing proportion of patients to seek treatment early, before complications arise; and (4) prophylactic appendectomies during pelvic and abdominal surgery.

It is beyond the scope of this paper to consider in detail all of the factors influencing the remarkable downward trend in death rate from appendicitis. The fact, however, that in 1950 appendicitis took 2,897 lives in the United States indicates that there is still a need to improve the methods of coping with this disease and to widen their effective use. Elective appendectomy in conjunction with pelvic and abdominal surgery has gradually become an accepted and recommended procedure, but reluctance to perform a prophylactic appendectomy at the time of cesarean section still exists among surgeons. This presents a challenge that should be investigated to ascertain whether the premises on which this reluctance rests are valid.

It is the purpose of this paper to show the development and acceptance of elective appendectomy in conjunction with pelvic and abdominal surgery through a review of some of the literature and to answer the challenge of performing elective appendectomy with cesarean section by presenting a series of 20 cases of my own and a survey of 764 cases of other surgeons. All of these cases were without any significant complications attributable to the incidental removal of the appendix.

SURVEY OF LITERATURE

In 1908, Fischer¹ wrote, "For the last two years it has been my rule to remove the appendix when I opened the abdomen for other causes, where the condition of the

patient would allow this extra procedure." In 1910, McWilliams² reported a series of 1,411 appendectomies performed at the Presbyterian Hospital in New York from 1906 through 1909. Of these, 212 were done incidentally during laparotomies for other reasons. He said, "I have seen no list of such operations to prove that the removal of the appendix will prejudice recovery." In his own work he removed the appendix in 299 of the last 600 abdominal sections he had done for causes other than appendicitis or the removal of the appendix.

In 1911, Goldspohn³ published an article in which he quoted the experience of a number of surgeons who found it necessary to do appendectomies after other abdominal operations and who were beginning to advocate the elective removal of this "mischievous and useless organ" when the abdomen was opened for other reasons. In 1913, Goldspohn⁴ said, "Prophylaxis is becoming more and more the better part of the function of every medical man. . . . During the past ten years the appendix has been removed incidentally with constantly increasing frequency." Since then, the advisability of removing the apparently healthy appendix at the time of other abdominal surgery has been the subject of much discussion. Most surgeons now agree that it is a sound and advisable procedure when done judiciously. Adair⁵ states that "The removal of the appendix during laparotomy for other conditions, if the appendectomy does not entail any appreciable additional risk, is sound prophylaxis." Berkeley and Bonney⁶ remove the appendix in well-chosen cases.

From the Department of Obstetrics and Gynecology, College of Medical Evangelists.

Read before the Section on Obstetrics & Gynecology at the 102nd Annual Meeting of the American Medical Association, New York, June 4, 1953.

1. Fischer, L. C.: Should the Appendix Be Removed in All Cases Where the Abdomen Is Opened for Other Causes? *Atlanta J.-Rec. Med.* 10: 410-414, 1908-1909.

2. McWilliams, C. A.: Analysis of 1,411 Operations upon the Appendix, *New York J. Med.* 10: 110-118 (March) 1910.

3. Goldspohn, A.: Why the Vermiform Appendix Should Usually Be Removed When an Abdominal Incision Made for Other Causes Is Available and the Condition of the Patient Admits of the Additional Operating, *Illinois M. J.* 19: 593-603 (May) 1911.

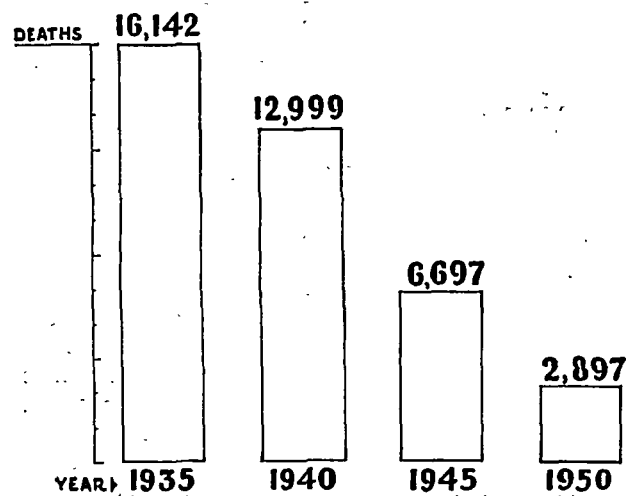
4. Goldspohn, A.: Why Incidental Removal of Vermiform Appendix, When Reasonably Possible, Should Be the Rule, *Am. J. Obst.* 67: 481-492 (March) 1913.

5. *Obstetrics and Gynecology*, Adair, F. L., editor, Philadelphia, Lea & Febiger, 1940, vol. 2, p. 618.

6. Berkeley, C., and Bonney, V.: *Textbook of Gynaecological Surgery*, ed. 4, New York, Cassel & Co., Ltd., 1942, p. 608.

Curtis,⁷ during the earlier years of his surgical experience, did elective appendectomies at gynecologic operations. His views were temporarily modified by a few disappointing cases, but he reverted to routine removal of the appendix, unless the procedure was contraindicated.

Marshall and Macer,⁸ in their review of the mortality in 10,622 operations done on the gynecologic service at the Los Angeles County General Hospital, found that the elective appendectomies undoubtedly influenced the fatal outcome of some of the cases. Fatalities occurred, however, in patients on whom the appendectomies were done after prolonged and difficult operations or in instances in which there were accidental errors in the technique of the appendectomy. Pratt,⁹ in reporting on morbidity after total hysterectomies at the Mayo Clinic, found that appendectomies performed simultaneously with total hysterectomies had no effect on morbidity and should be performed on all patients in whom there are no contraindications. Rosset and Conston¹⁰ found that



Decrease in mortality rate of appendicitis between 1935 and 1950.

in 12% of their cases there was asymptomatic appendicitis. They advise routine incidental appendectomy provided risk to the patient is not increased.

Taniguchi and Kilkenny¹¹ in a review of 532 cases found no complications attributable to the prophylactic appendectomy and advise the routine removal of the ap-

pendix in pelvic surgery whenever it is accessible. Te Linde,¹² in his book "Operative Gynecology," states that it is his custom to remove the appendix in all pelvic laparotomies except in those cases in which it appears inadvisable to prolong the operation. He also states that at occasional intervals acutely inflamed and even ruptured appendixes are found in women who have had previous pelvic laparotomies. Wharton¹³ states that "We routinely remove the appendix during all pelvic laparotomies, unless the condition of the patient does not allow the additional surgery."

When one considers the evidence in favor of appendectomy in gynecologic surgery, questions naturally arise regarding the indications for this procedure in cesarean section. The feeling among obstetricians, that the appendix should not be removed at cesarean section, probably stems from the fact that the mortality rate has been higher in appendicitis during pregnancy than when not associated with pregnancy. The significance of this high mortality rate has been shown by investigators who have found that with proper treatment the mortality among pregnant women with appendicitis is no higher than among those who were not pregnant.

Lloyd-Green,¹⁴ in her report from Australia, states that the mortality of appendicitis complicating pregnancy is the mortality of delay. De Voe, Day, and Ferris¹⁵ of the Mayo Clinic report a pregnancy at term complicated by ruptured appendix. Dr. Ferris states that the reason for the high mortality rate of appendicitis in pregnancy is that the diagnosis is arrived at too slowly. Maes, Boyce, and McSettridge¹⁶ remark that the pathological condition is usually aggravated by delay.

Te Linde¹⁷ also upholds this viewpoint when he states that "The mortality of acute appendicitis in pregnancy is greater than in the nonpregnant. This is due to delay in diagnosis. It is doubtful that the mortality would be greater if these women were operated upon as early as the nonpregnant. . . . It becomes clear, then, that the mortality of appendicitis that complicates pregnancy is the mortality of delayed treatment, and delayed treatment is due to difficulties in diagnosis in the pregnant woman." Warfield¹⁸ of the Georgetown University Medical School, Washington, D. C., remarks that the important concept to remember is that the mortality of appendicitis is the mortality of delay.

PERSONAL EXPERIENCE

My interest in the subject was aroused in 1939 when a patient who was to have her third cesarean section requested that an appendectomy be done at the time of the section. Having been taught, and firmly believing, that performing an appendectomy at the time of cesarean section is a hazardous procedure because of the danger of infection, I felt obliged to deny her request. The cesarean section and appendectomy were done by another physician, and the patient's postoperative course was uneventful.

In 1946 in a patient on whom I had done a cesarean section, appendicitis developed a few months later and necessitated an appendectomy. I could not help but feel that the patient who had the appendectomy at the time of the cesarean section was the more fortunate of the two. I performed the first appendectomy with a cesarean sec-

7. Curtis, A. H.: A Textbook of Gynecology, ed. 3, Philadelphia, W. B. Saunders Company, 1938, pp. 537-540.

8. Marshall, H. K., and Macer, G.: Gynecologic Mortality Lessons, West. J. Surg. 57: 365-387 (Aug.) 1949.

9. Pratt, J. H.; Lee, M. J., Jr.; Hasskarl, W. F., Jr., and Brandes, R. W.: Morbidity After Total Abdominal Hysterectomy, Am. J. Obst. & Gynec. 61: 407-413 (Feb.) 1951.

10. Rosset, E. M., and Conston, A. S.: Acute Appendicitis Incidental to Gynecologic Abdominal Procedures, Am. J. Obst. & Gynec. 61: 1136-1141 (May) 1951.

11. Taniguchi, T., and Kilkenny, G. S.: Prophylactic Appendectomy in Gynecological Surgery: Review of 532 Cases, Am. J. Obst. & Gynec. 60: 1359-1362 (Dec.) 1950.

12. Te Linde, R. W.: Operative Gynecology, Philadelphia, J. B. Lippincott Company, 1946, p. 684.

13. Wharton, L. R.: Gynecology, with a Section on Female Urology, Philadelphia, W. B. Saunders Company, 1943, p. 733.

14. Lloyd-Green, L., and Macleod, A.: Pregnancy at Term Complicated by Acute Appendicitis, M. J. Australia 1: 695 (May 12) 1951.

15. De Voe, R. W.; Day, L. A., and Ferris, D. O.: Pregnancy at Term Complicated by Ruptured Appendix, Proc. Staff Meet., Mayo Clin. 22: 134-141 (April 2) 1947.

16. Maes, U.; Boyce, F. F., and McSettridge, E. M.: A Surgical Consideration of Appendicitis in Pregnancy, Am. J. Obst. 27: 214-224, 1934.

17. Te Linde, R. W.: p. 687.

18. Warfield, C. L.: Acute Appendicitis Complicating Pregnancy, Postgrad. Med. 8: 10-14 (July) 1950.

tion in 1947 and have done 19 similar operations since that time. Data on all of these cases are listed in the table.

In no instance was the appendectomy the indication for cesarean section. Each appendectomy was done electally and was secondary to cesarean section. Spinal anesthesia was used in 19 cases and cyclopropane in 1 case. The vertical skin incision was used in 17 cases and the transverse in 3 cases. The appendix is more accessible when the vertical incision is used. The low cervical cesarean section was the technique used in all cases. The transverse incision was used in the lower uterine segment in 19 patients, whereas the vertical was used in 1 in whom large veins were present laterally.

The technique used in removing the appendix consisted of ligating the appendix at the base with 000 ab-

Ten patients received 500 cc. of whole blood during surgery. Three of the more anemic patients received 1,000 cc., and seven were not given transfusions. All patients, with the exception of those in cases 1 and 2, received antibiotics for three or four days after surgery, and a few received them before surgery. Penicillin, procaine penicillin G (Crysticillin and Duracillin), and streptomycin were the antibiotic agents used. There were no infections, and the incisions all healed by primary union.

The morbidity was 15%. This is satisfactory considering the morbidity standard used; namely, that of the Joint Committee on Maternal Welfare. It is defined as temperature of 100.4 F (38 C) occurring on any 2 of the first 10 days post partum, exclusive of the first 24

Data on Appendectomies Performed at the Time of Cesarean Section

Case	Race or Nationality	Age, Yr.	Hours of Labor	Condition of Membranes	Hemoglobin, Gm. per 100 Cc.	Indications for Section	Date of Section Plus Appendectomy	Number of Section	Skin Incision	Transfusion, Cc.	Morbidity	Days in Hospital
1	C*	34	0	Ruptured, 3 hr.	13.5	Previous section	9/ 3/47	2nd	V†	500	0	8
2	C	31	0	Intact	13.7	Postmature 3 wk.; previous dead baby	9/23/47	1st	V	500	0	8
3	C	19	0	Intact	12.0	Placenta previa	10/29/48	1st	V	500	+	6
4	C	40	0	Intact	13.2	Previous section	7/31/49	2nd	V	0	0	7
5	C	33	0	Intact	....	Previous section	4/17/50	2nd	V	1,000	0	6
6	C	30	0	Intact	14.2	Twins—breech and footling	5/ 5/50	1st	V	0	0	6
7	N‡	30	Few	Intact	9.8	Previous section	1/ 7/51§	3rd	V	1,000	0	6
8	J||	40	0	Intact	14.0	Elderly primipara; fetal distress	2/ 4/51	1st	V	0	0	7
9	C	24	Few	Ruptured, 6 hr.	13.2	Placenta previa	3/ 9/51	1st	T¶	500	0	6
10	C	31	Few	Ruptured, 10 hr.	10.8	Fibromyomas and uterine inertia	4/ 7/51#	1st	T	500	+	9
11	C	36	8	Ruptured, 12 hr.	10.9	Elderly primipara; android pelvis	4/26/51	1st	T	500	0	8
12	C	32	Few	Intact	12.7	Previous section	8/20/51	2nd	V	500	0	8
13	C	28	0	Intact	11.3	Previous section	10/ 1/51	2nd	V	500	0	6
14	C	30	0	Intact	9.6	Previous section	3/26/52§	2nd	V	1,000	0	6
15	C	38	0	Intact	12.2	Previous section	4/10/52	2nd	V	0	0	6
16	N	33	0	Intact	9.5	Previous section	5/ 1/52	2nd	V	500	0	6
17	C	35	Few	Ruptured, 4 hr.	12.6	Previous section	8/25/52**	2nd	V	0	0	4
18	N	40	0	Intact	13.8	Previous section	10/30/52§	2nd	V	500	+	7
19	N	41	Few	Ruptured, 3 hr.	11.7	Vasa previa	2/19/53	1st	V	0	0	7
20	C	33	0	Intact	13.0	Previous section	3/ 1/53	2nd	V	0	0	6

* Caucasian.

† Vertical.

‡ Negro.

§ Also tubal ligation.

|| Japanese.

¶ Transverse.

Also myomectomy.

** Lipid granuloma of appendix.

sorbable (chromic) surgical suture, excising it, coating the stump with phenol, and inverting it with 00 absorbable (chromic) surgical suture in a pursestring fashion. The appendectomy was performed at the time of the first cesarean section in 8 of the cases, with the second section in 11 cases, and with the third section in one case. A myomectomy was performed in one patient (case 10). Three patients were sterilized by the excision of approximately 2 cm. of the middle portion of the tubes and by ligating and burying both of the cut ends of the tubes. The patient in case 20 had a 2 cm. window of the uterine scar. The incision was made over the previous scar. No difficulty was encountered in closing this incision.

All appendixes were studied by the laboratory; all were reported as normal, except the one from the patient in case 17. In that patient, a lipid granuloma of the appendix was found.

hours, and taken by mouth by a standard technique at least four times a day. There were three patients in the group whose postoperative temperatures were 100.4 F or above on two and three days after surgery. The patient in case 3 was operated for placenta praevia, and an appendectomy was done. She had a temperature of 100.4 F and 101.6 F (38.7 C) on two postoperative days. The patient in case 10 had a myomectomy and appendectomy with the cesarean section. Her temperature was 101 F (38.4 C), 100.8 F (38.2 C), and 100.4 F on the first, second, and fourth postoperative days, respectively. The patient in case 18 was a 40-year-old Negro woman who had a repeat cesarean section with sterilization. Her temperature was 100.4 F and 101.6 F on the second and third days, respectively. She left the hospital on the seventh day in good condition. The average hospital stay was six and seven-tenths days per patient. The shortest hospital stay was four days, and the longest was nine days.

EXPERIENCE OF OTHERS

In addition to the 20 cases from my own experience, I would like to present a survey of 764 cases from the practices of a number of surgeons with whom I have communicated and who have graciously given me permission to use their material and from the gynecologic and obstetric services of the White Memorial Hospital and the Los Angeles County General Hospital.

R. J. Thompson of Los Angeles states, "I am very interested in the work that you are doing on the problem of performing appendectomy at the time of cesarean section. In years past I have frequently followed such a procedure, and I have never regretted having removed an appendix at the time of cesarean section. I am convinced that, since we now have antibiotics available, this procedure can be made even a more safe one than in times past. For this reason I do not hesitate, when the abdomen is opened and cesarean section is performed, to remove the appendix."

J. C. Irwin of Los Angeles reports that he has been performing elective appendectomies at the time of cesarean sections since approximately 1930. He has been doing this supplemental surgery only if there were no complications of the cesarean section or pregnancy that would otherwise contraindicate such a procedure. He has performed more than 200 appendectomies at the time of cesarean sections and to his knowledge has had no complications attributable to this supplemental surgery. He feels that it is definitely the procedure to follow in such circumstances.

H. E. Tebbetts and associates of Whittier, Calif., have performed 110 appendectomies with cesarean sections during 1943 to 1952, inclusive. Antibiotics were given when indicated, and there were no infections. J. Naeslund of the Uppsala University, Uppsala, Sweden, has done elective appendectomies with cesarean sections since 1925; 263 cesarean sections were performed on his service from 1935 through 1952. Incidental appendectomies were done on 106 of these patients. The appendix had been removed previously in 68, and the condition of the remaining 89 was not considered suitable to allow the additional surgery. There were two deaths among the 106 patients who had an appendectomy with the cesarean section; 1 died of bronchopneumonia and the other of toxicosis gravis and uremia. There were no infections or complications attributable to the appendectomies.

W. F. Kroener and L. T. Hibbard of Whittier, Calif., performed 85 appendectomies with 101 cesarean sections between 1945 and 1952, inclusive. Of this group, the microscopic examination of the appendix revealed mild acute catarrhal appendicitis in one case, mild acute appendicitis in one case, and carcinoid of the appendix in one case. Antibiotics were given in 25 cases, while none were used with the remaining 60. There were no complications ascribable to the appendectomies, and the morbidity was only 14%. H. W. Henken of San Bernardino, Calif., writes: "Your question concerning the performance of an appendectomy at the time of a cesarean section is interesting. This problem first came to my attention when a patient on whom I performed a cesarean section came in the same year for an emergency

appendectomy. At the time of the cesarean section, the question of an appendectomy was discussed. Since that time I have done more than 50 appendectomies on selected cases at the time of the cesarean section. In no instance was there any significant change in the recovery of the patient."

F. O. Wood and G. L. Austin Jr. of Hartford, Conn., treated a series of 200 cases of appendectomy at the time of cesarean section without infection. Some of the pathological findings reported included acute appendicitis, fibrosis of the appendix, decidual reaction, carcinoid of the appendix, and oxyuria vermicularis.

In addition to the 20 cases described in the table, 7 other cases of appendectomy with cesarean section have been recorded at the White Memorial Hospital. There were no infections among these patients. Elective appendectomy at the time of cesarean section has not been done at the Los Angeles County General Hospital until this year. Since Jan. 1, 1953, six such operations have been performed without complication. By personal communication, a number of isolated cases performed with satisfactory results have been reported.

SUMMARY AND CONCLUSIONS

The data on 20 private patients on whom elective appendectomy was done with cesarean section are presented. A survey of 764 similar procedures performed by other surgeons is included. All of the operations were without any significant complications that could be attributed to the incidental removal of the appendix. The appendectomy was done only when the patient was in good general condition, when the anesthetic was well tolerated, when the cesarean section itself did not present any difficult or unusual time consuming features, and when the appendix was accessible. It is my opinion that in the well-chosen case an elective appendectomy at the time of cesarean section is a safe and desirable adjunct in the armamentarium for safeguarding the life and health of patients.

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Carcinoma of the Vulva.—Although a relatively rare condition, this is the gynecological cancer most characteristic of old age. The fact that so many cases follow on an external vulvar dermatitis of long standing often has the paradoxical effect of delaying the diagnosis. The symptoms are regarded by the patient as further manifestations of the chronic martyrdom to which she has been subject, and advice is not sought until a late stage. The lymphatic drainage of the vulva is exceptionally free. Many anastomotic channels cross the midline, allowing the cancer to spread rapidly and bilaterally. The inguinal or iliac metastases are extremely painful, press upon, and not infrequently erode, the great vessels, and fungate readily. It is therefore most necessary to secure the prompt diagnosis and the adequate treatment of vulvar cancer. Radiotherapy is not generally useful: the response of the primary tumor is unpredictable, the production of much local necrosis is an unpleasant and not infrequent complication, and the secondary deposits in the nodes are resistant to treatment. The operative extirpation of the whole vulva with the lymph nodes on both sides is the treatment of choice and is usually well tolerated even by feeble old ladies. The immediate relief of pain and the improvement in general health are often quite remarkable.—W. I. Morris, M.D., *Gynaecological Disorders in Old Age, Practitioner*, November, 1953.

CHEMOTHERAPY OF PRIMARY ATYPICAL PNEUMONIA

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Soon after chlortetracycline (Aureomycin) became available for clinical evaluation, several reports presented data showing that this drug is effective in primary atypical pneumonia.¹ The paper by one of us (G. M.) and Shragg^{1d} reported that a sharp difference was noted between the duration of elevation of temperature in a group of patients treated with chlortetracycline and in a comparable group treated with penicillin. Since that time we have had additional opportunity to use chlortetracycline in this disease and have consistently observed a prompt drop in temperature and rapid clinical recovery. Experience with chloramphenicol (Chloromycetin) and oxytetracycline (Terramycin) has been more limited, but results have been generally similar.

Partly because adequately controlled studies have been so few in number and partly because primary atypical pneumonia is a disease that is often of short duration even when no chemotherapy is used, there has been considerable reluctance in some quarters to accept the thesis that the therapeutic effectiveness of chlortetracycline in this disease has been established. It seemed advisable, therefore, when large numbers of cases of primary atypical pneumonia began to occur at Fort Ord, California, during the fall of 1950, to study further the effectiveness of chlortetracycline and to compare its effectiveness with that of chloramphenicol and of oxytetracycline. With these objectives, an investigation was initiated during October, 1950, and continued until March, 1951. During that time data were collected on 149 patients with a diagnosis of primary atypical pneumonia who were treated with one of the three antibiotics mentioned or with penicillin. The penicillin-treated group was regarded as the control group. Penicillin was used

in this role because it is generally held to have no therapeutic effect in primary atypical pneumonia and because its use tended to cancel out any advantage accruing to the other drugs in the event that patients with bacterial pneumonia were inadvertently included in the series.

MATERIALS AND METHODS

Type of Patients Treated.—The patients were military personnel, the majority of whom were engaged in basic training soon after induction into the Army. All were males and, with few exceptions, were in the young adult age group. All were patients at the Station Hospital, Fort Ord.

Diagnostic Criteria.—The criteria followed in making a diagnosis of primary atypical pneumonia have been presented elsewhere.² Patients were included in the study group only when one, or more than one, area of infiltration was observed in the chest roentgenogram. Patients with pneumonia were excluded from the study if (1) the temperature readings during the 24 hours before treatment was started failed to reach 100 F; (2) the patient's course suggested that spontaneous recovery was imminent; (3) the clinical and laboratory findings suggested a bacterial etiology; or (4) the results of serologic tests established a diagnosis of influenza. The purposes of this screening were to narrow the study group, insofar as possible, to patients with a single clinical entity and to exclude patients whose illness was so mild or so near to spontaneous termination as to make evaluation of drug effect impossible.

Cold Hemagglutinins.—Cold agglutination tests were done for most patients, but in the majority of instances serum specimens were collected during their hospital stay and consequently in many instances were taken prior to the period when cold agglutinins are most likely to reach maximal titer. For this reason no accurate figures can be given on the percentage of persons in whom significant titers were demonstrated. A substantial proportion of those persons whose total illness exceeded 10 days in duration were shown to have cold hemagglutinins in significant titer.

Dosage of Drugs.—Chlortetracycline, chloramphenicol, and oxytetracycline were given by the oral route in doses of 0.5 gm. every six hours, a total of 2 gm. daily. In line with earlier recommendations,³ those patients receiving chloramphenicol were given a priming dose of 2 gm. of drug when therapy was started. This procedure was not followed with the other two drugs. Penicillin was given in single daily intramuscular injections of 600,000 units of procaine penicillin. The duration of therapy was, in most instances, three to five days.

It was arranged that, when patients receiving penicillin had shown no substantial improvement or appeared more ill within 48 hours, or at any time thereafter, they

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Assistant Professor of Medicine, University of California School of Medicine, San Francisco; now Professor of Medicine, University of Colorado School of Medicine, Denver (Dr. Meiklejohn). Assistant Professor of Pediatrics, University of California School of Medicine, San Francisco (Dr. Kempe).

The chlortetracycline (Aureomycin) used in this study was supplied by Stanton M. Hardy, M.D., Lederle Laboratories, Division of American Cyanamid Company, Pearl River, N. Y.; the oxytetracycline (Terramycin) by Gladys L. Hobby, Ph.D., Chas. Pfizer and Company, Brooklyn; and the chloramphenicol (Chloromycetin) by R. J. Buckman, M.D., Parke, Davis & Company, Detroit.

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2. Meiklejohn, G.: Viral Pneumonia, *M. Clin. North America* 31: 1442-1456 (Nov.) 1947. Meiklejohn and Shragg.^{1d}

3. Smadel, J. E.; Leon, A. P.; Ley, H. L., Jr., and Varela, G.: Chloromycetin in the Treatment of Patients with Typhus Fever, *Proc. Soc. Exper. Biol. & Med.* 68: 12-19 (May) 1948.

should be dropped from the control group. Administration of penicillin was then stopped and one of the other antibiotics was given. This arrangement removed from the study group those control patients whose illness was severest and made it impossible to calculate figures for the mean and median duration of illness. It is for this reason that the following analysis is based on the responses of patients during the 48 hours after treatment was begun.

TABLE 1.—Distribution of Patients with Primary Atypical Pneumonia by Duration of Illness When Treatment Was Started

Duration of Illness Before Treatment, Days	No. of Patients Treated			
	Chlortetracycline	Chloramphenicol *	Oxytetracycline *	Penicillin
1-2	10 (19%)	6 (20%)	5 (20%)	10 (25%)
3-4	23 (44%)	10 (33%)	11 (46%)	16 (40%)
5-6	12 (23%)	6 (20%)	4 (17%)	6 (15%)
7 or more.....	7 (14%)	8 (27%)	4 (17%)	8 (20%)
Total.....	52 (100%)	30 (100%)	24 (100%)	40 (100%)

* Data on 2 patients treated with chlortetracycline and 1 treated with chloramphenicol were regarded as inadequate for accurate dating of onset, and these patients are omitted from this table.

Laboratory Procedures.—Routine procedures included white blood cell counts and pharyngeal or sputum cultures. Cold hemagglutination tests were done on a large proportion of patients. Serum specimens were collected soon after admission to the hospital, and two weeks or more after onset, for serologic tests. Complement-fixation tests for the influenza viruses A and B were performed with these serum pairs.

Considerations in Analysis of Results.—In attempting to compare the results in the different groups of patients, consideration was given to several types of criteria, such as the time that elapsed before symptomatic improvement was noted, evidence of clearing of pulmonary infiltrations, and the time required for the patient's temperature to fall. The desirability of using all approaches was obvious, but the two former methods defied objective evaluation. Consequently, the analysis that follows is based on the course of the patient's temperature following the commencement of treatment. Two intervals were determined, namely, (1) the number of hours that elapsed before the oral temperature reached 100 F and (2) the number of hours before a "sustained drop" in temperature was noted. This "drop" was a fall in temperature of 2 degrees Fahrenheit after which the temperature did not exceed the lower reading. With very few exceptions, this drop was accompanied by symptomatic improvement and was followed by prompt clinical recovery.

Method of Deciding Drug to Use.—In the initial phases of the study patients were given one of the four drugs on an alternating system, based on the time of their admission to the hospital. During January a sharp increase in the number of patients admitted to the hospital resulted in a temporary depletion of the supply of chloramphenicol and oxytetracycline and during this period only chlortetracycline was used. Toward the end of this period chlortetracycline and penicillin were used on an alternating basis. When supplies of all drugs were obtained, a system of alternation was resumed and con-

tinued until the end of the study. The numbers of patients who received treatment with each drug are, for these reasons, unequal. The inequality in size of the treatment groups is also due in part to removal from consideration here of patients subsequently shown to have had an influenzal infection. All are included in the following analysis because it is thought that the inclusion of larger numbers outweighs the admitted risk of comparing groups that were not strictly alternated. Also, the methods of analysis that were followed tend in large measure to minimize differences that may have arisen from the unavoidable deviation from a system of absolute alternation.

OBSERVATIONS AND RESULTS

Comparability of Groups Treated with Different Drugs.

—In order to determine whether or not the groups of patients treated with the four drugs were similar, data of two types were analyzed. The first of these was the duration of illness at the time when treatment was started. The data obtained are shown in table 1. In all groups, treatment of the majority of patients was begun within four days of the onset of illness. The proportions of patients treated after the fourth day of illness did not differ greatly. In general the data do not indicate that the stage of illness at which treatment was started in the penicillin-treated group was earlier than the stage at which other drugs were started.

The second type of data was the height of the patient's temperature at the time when treatment was started. Because a spiking type of temperature curve was frequently observed, it was considered advisable to utilize the highest temperature recorded within 24 hours before or after treatment was begun rather than the reading taken precisely at the time when treatment was started. Data showing the distribution of patients by maximal temperature reading during this interval are presented in table 2. Again the differences between the four groups are not large. The data show that the proportion of patients with maximal temperature readings in the lowest range was somewhat larger in the penicillin-treated group and that the proportion of patients with temperatures of

TABLE 2.—Distribution of Patients by Maximum Temperature During Twenty-four Hour Period Before Treatment Was Started

Maximum Temperature, F	No. of Patients Treated			
	Chlortetracycline	Chloramphenicol	Oxytetracycline	Penicillin
100-101.8	15 (28%)	6 (19%)	5 (21%)	15 (38%)
102-102.8	16 (30%)	11 (36%)	9 (37%)	13 (33%)
103-103.8	14 (26%)	11 (36%)	6 (25%)	7 (17%)
104 or more.....	9 (16%)	3 (9%)	4 (17%)	5 (12%)
Total.....	54 (100%)	31 (100%)	24 (100%)	40 (100%)

103 F or more was smaller in this group than in those treated with chlortetracycline, chloramphenicol, or oxytetracycline.

We are fully aware of the fact that data of this sort do not establish the fact that the four groups are strictly comparable. We interpret the findings as indicating that the study was not grossly biased against the penicillin-treated (control) group because of lack of balance with respect to the two factors that have been discussed.

Fall of Temperature to 100 F within 48 Hours.—Data showing the proportion of persons treated with each drug whose temperature fell to 100 F within 48 hours after treatment was started are presented in table 3. It will be noted that, when all patients are considered, a temperature drop of this order was observed in the great majority of patients treated with chloramphenicol, oxytetracycline, and chlortetracycline. Attention is also called to the fact that one-half of the patients treated with penicillin behaved in a similar fashion. This proportion is decidedly lower than that observed in any other group; the difference from the other groups is statistically significant ($X^2 = 7.17$; $N = 1$; $P = < 0.01$).

In order to obtain further information on this point, the patients were divided into three groups on the basis of their maximum temperature at the time when treatment was begun. This afforded a breakdown that correlated to a degree with the severity of the illness. It was observed that, among patients whose maximum temperature was less than 102 F, all those treated with chlortetracycline, chloramphenicol, or oxytetracycline showed, with one exception, a drop in temperature to 100 F within 48 hours (table 3). It should be noted, however, that 13 of 15 patients treated with penicillin

TABLE 3.—Proportion of Patients in Each Therapy Group Whose Temperature Fell to 100 F Within Forty-eight Hours After Treatment Was Started

Maximum Temperature, F	Proportion with Temperature Drop During Treatment			
	Chlortetracycline	Chloramphenicol	Oxytetracycline	Penicillin
Less than 102...	14/15* (93%)	6/6 (100%)	5/5 (100%)	13/15 (87%)
102-102.8	15/16 (94%)	11/11 (100%)	9/9 (100%)	8/13 (62%)
103 or more.....	15/23 (65%)	12/14 (86%)	6/10 (60%)	0/12 (0%)
All patients	45/54 (83%)	29/31 (94%)	20/24 (83%)	21/40 (53%)

* Denominator = no. of patients in temperature-range category; numerator = no. of patients with temperature drop to 100 F.

also showed a fall in temperature of like degree. Among patients whose maximum temperature readings fell between 102 and 102.8 F, all but one of those treated with the three newer antibiotics showed a similar drop in temperature within 48 hours. Again, however, a majority of those treated with penicillin, namely, 8 of 13, behaved in the same way. It was apparent, therefore, that patients in these categories were of little value in bringing out differences in the effectiveness of the drugs and that the differences observed in the crude figures must be attributed largely to those patients whose maximum temperature came within the higher ranges.

Attention was, accordingly, turned to those patients whose maximum temperature exceeded 103 F. Here the difference between the control group and the other groups was sharp. It will be noted that none of 12 penicillin-treated patients showed a temperature drop to 100 F within 48 hours. With each of the other drugs over half of the patients showed a temperature fall of this order. The highest proportion (12 of 14) behaving in this manner was observed in the chloramphenicol-treated group. The corresponding proportions were 15 of 23 in the chlortetracycline-treated group and 6 of 10 in the oxytetracycline-treated group.

Sustained Drop of Temperature within 24 and 48 Hours.—The criteria set up in defining the term "sustained drop" of temperature virtually excluded patients

whose temperature failed to reach 102 F, and for this reason the discussion is limited to patients whose temperature exceeded this figure. Data are presented in table 4. When all patients whose maximum temperature exceeded 102 F were considered, there was again a difference between the penicillin-treated group and those treated with other drugs. The difference was sharper

TABLE 4.—Proportion of Patients in Each Therapy Group in Whom a Sustained Drop in Temperature Was Observed Within Twenty-Four or Forty-Eight Hours

Maximum Temperature, F	Sustained Drop Within	Proportion with Sustained Drop			
		Chlortetracycline	Chloramphenicol	Oxytetracycline	Penicillin
102-102.8	24 hours	7/16 (44%)	8/11 (73%)	6/9 (67%)	5/13 (38%)
	48 hours	14/16 (88%)	11/11 (100%)	8/9 (89%)	7/13 (54%)
103 or more	24 hours	13/23 (57%)	11/14 (79%)	8/10 (80%)	0/12 (0%)
	48 hours	18/23 (78%)	13/14 (93%)	8/10 (80%)	2/12 (17%)

in those patients treated with chloramphenicol or oxytetracycline than in those treated with chlortetracycline.

When the breakdown was limited to those patients whose maximum temperature was 103 F or more, the contrast between the penicillin-treated and other groups was considerably greater. At 24 hours none of the former had shown a sustained drop of temperature, whereas the majority of patients in the other groups had shown such a drop. At 48 hours only 2 of 12 penicillin-treated patients had shown a sustained temperature drop, while in the other groups the proportion of patients behaving in this way was 18 of 23 in the chlortetracycline-treated group; 8 of 10 in the oxytetracycline-treated group; and 13 of 14 in the chloramphenicol-treated group.

Comment on Stages of Disease when Treatment was Started.—It was considered of interest to determine whether control and treated groups differed according to the duration of illness when treatment was begun. The patients were so heavily concentrated in the groups whose illness was four days or less in duration that the numbers in the groups of duration greater than this are rather small. Even so, it may be noted that differences between penicillin-treated and other groups in the proportion of patients whose temperature fell promptly was greatest when the illness was shortest and was least when the illness was of five days' duration or more. Data illustrating this trend are presented in table 5, which shows that so large a proportion of the control group improved rapidly that differences could not be brought

TABLE 5.—Proportion of Patients in Each Group with Sustained Drop in Temperature Within Forty-eight Hours by Duration of Disease When Treatment Was Started

Duration of Illness Prior to Therapy, Days	Proportion with Sustained Drop			
	Chlortetracycline	Chloramphenicol	Oxytetracycline	Penicillin
1-2	6/8 (75%)	3/4 (75%)	4/4 (100%)	2/7 (29%)
3-4	16/18 (89%)	8/8 (100%)	6/8 (75%)	5/12 (42%)
5 or more.....	10/13 (77%)	13/13 (100%)	6/7 (86%)	4/6 (67%)

out. This further emphasizes the difficulty of evaluation of therapy in primary atypical pneumonia in a population such as this, where even the untreated disease tends to be of relatively short duration.

Unsuccessful Treatment with Penicillin and Subsequent Treatment with Other Antibiotics.—It has already been noted that, when patients in the penicillin group

appeared to show no improvement after 48 hours or more, penicillin therapy was discontinued and one of the other antibiotics was substituted. In the discussion thus far, these patients have been considered only with respect to their behavior while they were receiving penicillin, for a therapeutic response to the second antibiotic could not fairly be claimed in view of the fact that the duration of illness was greater when treatment was begun. It is, however, of interest to note that, in eight patients in whom such a shift of treatment was considered advisable, there was in every instance a sustained drop in temperature within 48 hours and in only one instance did more than 24 hours elapse before the temperature had fallen below 100 F. Of these eight patients, three each received chlortetracycline and oxytetracycline and two received chloramphenicol.

Therapeutic Failures.—In view of the difficulty of defining a "therapeutic failure," it is considered advisable simply to record in those instances when the temperature reading had not fallen to 100 F within 48 hours after treatment was started the time that elapsed before the temperatures of patients eventually fell to 100 F. Of nine such patients in the chlortetracycline-treated group, the temperature of four fell to 100 F or less within 72 hours, of an additional three within 96 hours, and in two instances the temperature remained above 100 F for longer periods. Of the two comparable patients in the chloramphenicol-treated group, the temperature of one fell to 100 F within 72 hours. The other patient remained ill with a high temperature for more than a week. The cold hemagglutinin titer of this patient rose from less than 1:4 to 1:512. In the oxytetracycline-treated group all of the four patients whose temperature had not fallen to 100 F within 48 hours showed a drop to that level within 72 hours.

In summary, there were three unqualified therapeutic failures among the 109 patients who were treated with chlortetracycline, chloramphenicol, or oxytetracycline. In an additional four patients, between 72 and 96 hours elapsed before the temperature fell to 100 F. The eight patients whose temperature fell to 100 F between 48 and 72 hours after treatment was started might be classified either as therapeutic failures or as patients with a slow response to the antibiotic.

COMMENT

Comparison of the febrile course in groups of patients who received chlortetracycline, chloramphenicol, oxytetracycline, or penicillin brought out the fact that there was a difference in favor of the first three drugs as compared to the latter. When all patients were considered, this difference was not sufficiently sharp to conclude the argument regarding the effectiveness of these three newer drugs. The fact that the difference was not sharp resulted not from a lack of effectiveness of chlortetracycline, chloramphenicol, or oxytetracycline but rather from the fact that about one-half of the patients treated with penicillin showed a prompt drop in temperature.

Several facts of interest became apparent when patients were divided into groups according to their temperature when treatment was started. This analysis

brought out the fact that in patients whose maximum temperature failed to reach 102 F there was no significant difference between the four groups. Virtually all patients treated with the newer antibiotics showed a prompt fall in temperature, but 13 of 15 patients treated with the control drug showed the same response. It was therefore clear that, with this type of standard, a satisfactory test could not be made in patients whose maximum temperature was in this range because prompt recovery could be expected to occur in most persons with or without treatment. Inclusion of these patients, furthermore, tended to obscure the results of the comparison because of their diluting effect. Attention was therefore focused on those patients whose temperature exceeded 102 F.

When the patients' temperatures prior to treatment were in the highest ranges, the proportion of persons whose temperature dropped promptly following initiation of treatment with the three newer antibiotics was greater than that observed among patients who were given penicillin. Differences were brought out most sharply in those patients whose peak temperature was 103 F or more. It was postulated that, if any or all of these drugs were effective, a considerable proportion of patients should meet one or both of the following exacting criteria: 1. Their temperatures should fall to 100 F within 48 hours. 2. Their temperatures should show a "sustained drop" within 24 hours. None of 12 patients treated with penicillin met either of these criteria. In contrast, both criteria were met by the majority of patients treated with chloramphenicol, oxytetracycline, and chlortetracycline.

Further data supporting the effectiveness of these drugs are provided from the analysis of the relationship of the duration of illness and temperature response. It appeared that with the newer antibiotics a prompt temperature drop occurred regardless of the duration of illness, while in the penicillin-treated group a prompt fall in temperature was likely to occur only when the illness was of five days' duration or more.

It may appear that this is an excessively involved procedure for establishing the therapeutic effectiveness of these three antibiotics. The study brings out, however, the difficulty of conducting a definitive test in the chemotherapy of primary atypical pneumonia. The difficulty arises from the fact that, in a population of the type studied here, the proportion of persons who will recover soon after hospitalization is so large, regardless of the type of therapy, that clear-cut differences between specific drugs and a control preparation are not readily demonstrated. It is only in those patients whose illness is severer that a truly sharp difference can be shown. Patients of this sort make up a relatively small proportion of all patients with primary atypical pneumonia. Attention is called to the fact that it is in this type of patient that effective treatment is really needed.

Documentation of our impression that the fall in temperature was almost always associated with clinical recovery is not possible with the data at hand. Certain points, however, should be considered before one accepts the argument that all that has been demonstrated here is an antipyretic effect and that the underlying disease process continues unchanged.⁴ In many diseases

4. Rammelkamp, C. H.: Personal communication to the authors. Dingle, J. H.: Personal communication to the authors.

fever continues unabated despite the administration of chlortetracycline. One might cite other reports from this project dealing with the use of antibiotics in influenza⁵ and other acute febrile respiratory infections.⁶ In none of these studies was a significant difference noted between the temperature course of patients treated with chlortetracycline and those receiving penicillin or no chemotherapy. Other examples might be quoted from the extensive literature on antibiotic therapy. The experimental evidence reported on this point⁷ cannot yet be applied to the action of chlortetracycline in man. It would seem, therefore, that the burden of proof still lies with those who claim that the effect of chlortetracycline in primary atypical pneumonia is an antipyretic rather than a specific therapeutic one. Finally, evidence should be provided that this "antipyretic" effect is not peculiar to chlortetracycline but is also shared with chloramphenicol and oxytetracycline.

The data obtained pertaining to the relative effectiveness of the three drugs, chlortetracycline, chloramphenicol, and oxytetracycline, are not regarded as adequate for valid comparison. While the proportion of patients whose temperature fell promptly was higher in the chloramphenicol-treated group than in the other groups, it should be noted that a priming dose was used with this drug but not with the others. The more rapid fall in temperature might well be attributed to this rather than to a greater therapeutic effectiveness. Alternative meth-

ods of administering the other drugs or increases in the initial dose of the drugs might have equalized these differences.

SUMMARY

The proportion of patients with primary atypical pneumonia whose temperature fell promptly following treatment with chlortetracycline (Aureomycin), chloramphenicol (Chloromycetin) or oxytetracycline (Terramycin) differed from that observed in a control group treated with penicillin. The difference was negligible in patients whose temperature did not exceed 102 F, because virtually all patients in the control group recovered promptly. In patients whose temperature was 103 F or higher there was a decided difference in favor of chlortetracycline, chloramphenicol, and oxytetracycline over the control drug. The results provide further evidence that chlortetracycline is an effective drug in primary atypical pneumonia and suggest that chloramphenicol and oxytetracycline are at least equally effective.

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5. Thalman, W. G.; Kempe, C. H.; Worrall, J. A., and Meiklejohn, G.: Aureomycin in the Treatment of Influenza: Controlled Study, *J. A. M. A.* 144: 1156-1157 (Dec. 2) 1950. Kempe, C. H.; Thalman, W. G.; Lennette, E. H., and Meiklejohn, G.: Chemotherapy of Influenza, to be published.

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7. Tillotson, I. G., and Ginsberg, H. S.: An Antipyretic Action of Aureomycin, *Proc. Am. Fed. Clin. Res.* (May 4) 1952.

ETIOLOGY AND MANAGEMENT OF HYPOFIBRINOGENEMIA OF PREGNANCY

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Incoagulable blood as the result of hypofibrinogenemia is an obstetric syndrome of unusual clinical significance. Death from unmanageable hemorrhage may be the penalty. Prompt recognition of the condition and institution of appropriate therapy are obligations of the obstetrician. Hypofibrinogenemia is known to occur superimposed upon two complications of pregnancy. The first and most widely recognized complication is abruptio placentae. The second is prolonged retention of a dead fetus in an Rh-isosensitized mother. Incoagulable blood from a deficiency in circulating fibrinogen is the outstanding pathological characteristic common to both conditions. Detailed analysis of cases discloses possible differences in causes and clinical manifestations.

ABRUPTIO PLACENTAE TYPE

CASE 1.—A 26-year-old woman, para 1, gravida 2, was admitted to Henry Ford Hospital at 12:30 a. m., Dec. 4, 1952, with toxemia and clinical symptoms suggestive of abruptio placentae. Labor had begun at 9:30 p. m. on Dec. 3. Two hours after the patient was admitted, bleeding from the gums, vagina, and intestinal tract was noted. In a coagulation test, no clot was formed (Lee-White method); the fibrinogen content of the blood was zero (Howe method), and the platelet count was 50,000 per cu. mm. (Rees-Ecker method). At 3:50 a. m., a transfusion of 500 cc. of whole blood was given. At 3:55 a stillborn infant showing no maceration was delivered. The placenta showed evidence of two-thirds separation. Approximately 700 cc. of

blood was lost in postpartum hemorrhage. By 4:50, the excessive bleeding was under control. The prothrombin time was 30% of normal (Quick method); the hemoglobin was 10.7 gm. per 100 cc. (Sheard-Sanford photometer); the fibrinogen was 78.4 mg. per 100 cc., and the platelet count was 99,500. At 8:20 a. m. the coagulation time was three minutes. Clot retraction was poor. The fibrinogen level was 156 mg., and the platelet count was 81,900. The Rumpel-Leede phenomenon did not appear. At 9:00 p. m. that evening, the patient appeared disoriented, and nuchal rigidity was noted. The spinal fluid was bloody, and the pressure was increased. At 8:00 a. m., the next morning (Dec. 5), the patient's state of consciousness improved, and her reflexes were hyperactive. The coagulation time was 6.5 minutes, the prothrombin time was 100% of normal; fibrinogen was 131 mg.; hemoglobin was 8.4 gm., and the platelet count was 104,000. A transfusion of 500 cc. of whole blood was given. During the remainder of her hospital stay the patient showed gradual improvement. She was discharged Dec. 22. At no time was clot lysis evident in this patient.

MACERATED STILLBORN TYPE

CASE 2.—A 39-year-old woman was observed for her fourth pregnancy. Her first two pregnancies resulted in delivery of live infants. Her third pregnancy terminated in delivery of a stillborn infant. Her blood group was O, Rh negative, and her husband's was Rh positive.

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The last menstrual period had been Dec. 29, 1946, and the expected date of confinement was Oct. 5, 1947. During the fifth month of gestation fetal death was diagnosed. After several unsuccessful attempts on our part to induce labor with oxytocin (Pitocin), labor began spontaneously at approximately seven months' gestation on July 18, 1947. Labor was of poor quality, and oxytocin was used. After 9 hours and 43 minutes of active labor, she was delivered of a macerated stillborn female infant. The placenta and membranes were degenerated. Bleeding after delivery was profuse, and the blood failed to clot. The uterus was packed without avail. A total of 4,000 cc. of whole blood and 1,500 cc. of plasma was administered over a six hour period. The patient died on the fourth postoperative day from lower nephron nephrosis. Autopsy revealed no evidence of abruptio placentae. The fetus was badly macerated, and the placenta was degenerated.

In 1947, we were not alert to the possibility of hypofibrinogenemia in this type of case. Rh antibody titers were not performed; however, the pregnancy history, along with the known fact that the patient was Rh negative and her husband Rh positive, lends support to the belief that this patient was probably Rh isoimmunized and intrauterine fetal death was due to erythroblastosis fetalis.

CASE 3.—A 26-year-old white woman, para 1, gravida 3, was admitted to the Henry Ford Hospital obstetric service at approximately seven months' gestation. The fetus had been dead eight weeks. Her blood group was O, Rh negative (cde), and her husband was Rh positive (CDE). On Sept. 25, 1952, the indirect Coombs test was strongly positive and the Rh antibody titer 1:64 in albumin. One week prior to admission, she noticed bleeding from her gums. This increased in amount until delivery. The history was significant in that the patient had received a transfusion of her father's blood at the age of eight. Her first pregnancy, in 1951, terminated in delivery of a full-term infant that expired within the first 24 hours from pathologically proved erythroblastosis fetalis.

On Nov. 19, 1952, the patient was admitted to the hospital. She was having mild uterine contractions lasting for 30 seconds at intervals of 7 to 10 minutes. There was bleeding from the gums. The coagulation time was nine minutes and the bleeding time was four and one-half minutes (Duke method). The platelet count was 156,000 per cubic millimeter. At 1:50 p. m. spontaneous delivery occurred. The badly macerated fetus was contained in a degenerated ovular sac with an attached degenerated placenta. There was profuse bleeding from the gums. At 2:03 p. m. the uterus was firmly contracted. Vaginal bleeding, consisting only of liquid blood, was profuse and continuous. The blood fibrinogen level was zero; the platelet count was 48,000, and the bleeding time was five minutes. Ten cc. of calcium gluconate (10%) was given intravenously. At 2:17 the fibrinogen level was 58.7 mg. per 100 cc., and the prothrombin time was 56% of normal. A soft, spongy clot formed in the test tube in 17 minutes and lysed completely within 10 minutes. At 2:30, a clot formed in 25 minutes and lysed in 10 minutes. The clot retraction was zero. The fibrinogen level was 74.6 mg. At 2:40, 500 cc. of fresh blood was given, and at 2:50, 50 mg. of protamine sulfate was given intravenously. Another transfusion of 500 cc. of blood with 10 mg. of corticotropin was given at 3:40. At this time, 25 mg. of corticotropin was administered intramuscularly. At 4:00, clots appeared in the vaginal blood, and the bleeding from the gums ceased abruptly. The fibrinogen level was 87.5 mg. The coagulation time was 10 minutes. The clot was firmer, showed some retraction, and lysed in 20 minutes. The platelet count was 82,000, and the Ac-globulin ratio (Ware and Seegers method) was three units, although some loss of Ac-globulin may have occurred because conditions for the collection of the blood were not ideal. The prothrombin time in the two stage test (method of Warner, Brinkhous, and Smith) was 276 units. At 4:55, the clotting time was 10 minutes, and clot retraction was fair. The clot was partially lysed in 30 minutes and was 75% lysed in 24 hours. The fibrinogen was 110 mg.; prothrombin time was 100%, and

protamine titration (method of Allen and others) was within normal limits. At 6:00 p. m. the bleeding from gums and vagina had ceased, the fibrinogen was 200 mg., the prothrombin time was 100% (260 units by the two stage method) and the Ac-globulin was 10 units. When the patient was discharged from the hospital seven days after delivery, the platelet count was 256,000 and fibrinogen 210 mg.

MACERATED STILLBORN TYPE—CONTROL

CASE 4.—A 25-year-old white woman was followed during her fourth pregnancy. The first pregnancy terminated in delivery of a normal female infant. The second pregnancy terminated at eight months with delivery of a 2 lb. (906 gm.) infant that failed to survive. The third pregnancy, in 1951, resulted in delivery at 28 weeks of a stillborn infant. Death was ascribed to Rh incompatibility. The Rh antibody titer rose to 1:1,056 prior to intrauterine fetal death. The patient's blood was Rh negative (cde) and her husband's was Rh positive (CDE). On Aug. 20, 1952, the Rh antibody titer was reported negative.

Her expected date of confinement was May 25, 1953. The indirect Coombs' test was positive Oct. 21, 1952. On March 5, 1953, the Rh antibody titer was 1:64 in albumin and negative in saline solution. Pregnancy continued uneventfully until the latter part of January, 1953, when the diagnosis of intrauterine fetal death was made. The patient was observed for evidence of hypofibrinogenemia during the interval between fetal death and delivery. Blood fibrinogen levels, prothrombin levels, platelet counts, and clotting times obtained at frequent intervals were within normal limits. On March 27, 1953, the patient delivered a stillborn male infant weighing 600 gm. and showing mild evidence of maceration and liquefaction. The membranes and placenta appeared viable. No excessive bleeding was encountered at any time. The patient's postpartum course was uneventful, and she was discharged from the hospital on April 2, 1953.

Hypofibrinogenemia binds these two obstetric complications for common consideration. Variations in the type of onset, precipitating underlying pathological conditions, and significant laboratory differences suggest problems of theoretical and clinical interest.

Clinical observation¹ has shown wide variations in the time of onset of hemorrhage from hypofibrinogenemia. In the abruptio placentae type, fibrinogen depletion is coincident with placental separation. The macerated fetus type of hemorrhage is gradual in onset. Hemorrhagic manifestations may be evident days before the onset of labor, suggesting a gradual and prolonged loss of circulating fibrinogen.

Abrupt and extensive separation of the placenta, usually with evidence suggesting hemorrhagic infiltration of the uterus, is a constant factor in the abruptio placentae type. In the macerated stillborn type, placental separation is absent. The association of maternal Rh isosensitization, spontaneous death of fetus in utero, long intrauterine retention of a dead fetus, and delivery of a macerated infant have been commonly observed in the macerated stillborn type of hypofibrinogenemia.

Common to both types are depression of plasma fibrinogen, Ac-globulin, prothrombin, and probably platelets. Coagulation time is prolonged; bleeding time is not significantly altered; clot retraction is poor; clot formation is pathological, and blood calcium is undisturbed. The major laboratory difference between the two types lies in fibrinolysis of the clot. In the macerated stillborn type, fibrinolysis of the clot formed in a test tube is a prominent feature apparent to all observers who have reported on this syndrome. In the abruptio placentae type, fibrinolysis of the clot has been inconsistently reported.

1. Weiner, A. E.; Reid, D. E., and Roby, C. C.: Coagulation Defects Associated with Premature Separation of Normally Implanted Placenta, *Am. J. Obst. & Gynec.* 60: 379-386 (Aug.) 1950. Weiner, A. E.; Reid, D. E.; Roby, C. C., and Diamond, L. K.: Coagulation Defects with Intrauterine Death from Rh Isosensitization, *ibid.* 60: 1015-1022 (Nov.) 1950.

CAUSES

Abruptio Placentae Type.—Experimentally reproduced and largely clinically accepted are the observations of Schneider,² Page,³ and others,⁴ that hypofibrinogenemia occurs as the result of intravascularly disseminated coagulation. Schneider has shown that, possibly through rupture of the basal decidual plate, the maternal circulation is flooded with decidual and placental extracts rich in thromboplastin. Massive fibrinogen depletion occurs as the result of the conversion of fibrinogen to fibrin. Through the use of placental thromboplastin extract labeled with radioactive iodine, Page⁵ demonstrated that the material is concentrated in the liver, lungs, and spleen.

Macerated Stillborn Type.—The sequence of events leading to fibrinogen depletion in an Rh-isosensitized patient after prolonged retention of a macerated infant is not clear cut. It would seem that absorption of intra-uterine material into the maternal circulation is necessary for disappearance of maternal circulating fibrinogen. In the absence of abruptio placentae, transgression of the decidual barrier could occur through absorption of intraovular fluid after autolytic degeneration of the placenta and membranes. This mechanism has been postulated for amniotic fluid embolism.⁶ That obstetrically recognized placental separation is not necessary for the development of hypofibrinogenemia was proved by examination of the uterus and placenta of the patient in case 2. The importance of autolysis and degeneration of the placenta and membranes in the development of hypofibrinogenemia was suggested from comparison of cases 3 and 4. Violation of the placenta-membrane barrier through the process of autolysis and degeneration can explain why the dead fetus type of hypofibrinogenemia demonstrates gradual onset of hemorrhagic manifestations. Absorption of amniotic fluid rich in products of fetal degeneration and autolysis, and possibly thromboplastin, could possibly support the fibrinogen-fibrin conversion hypothesis.

The thromboplastin absorption does not explain why the macerated stillborn type of hypofibrinogenemia occurs in Rh-isosensitized patients and why fibrinolysis is such a prominent feature in this syndrome. The unique relationship of maternal Rh isosensitization and retention of a dead fetus is a common observation in all cases reported. Does this set of circumstances favor the development of some antibody toxic to fibrinogen during the period from death to expulsion of the fetus, which is presumably Rh positive? Stefanini and others⁷ recently described an antibody type of coagulation defect occurring in hemophiliacs receiving transfusions and in pregnant women near term, especially when there is Rh incompatibility between mother and child. The administration of cortisone was recommended for this type of coagulation defect. Whether there is any relationship of the macerated stillborn type of hypofibrinogenemia to the defect of coagulation described by Stefanini has to be established.

Maternal absorption of intraovular fluid, rich in products of autolysis, is another factor to be considered. Innerfield,⁸ working with rabbits and dogs, noted that trypsin administered intravenously caused depression of the protein constituents of the clotting mechanism.

Fibrinogen was reduced to quantities too low to measure, prothrombin was reduced, and fibrinolysis increased. Innerfield extended his studies to humans and noted similar reduction in fibrinogen and antithrombin levels. Using dogs, we have confirmed Innerfield's observations.

The maternal absorption of amniotic fluid, possibly high in proteolytic enzymes or enzyme activators as indicated by the degree of autolysis of the delivered fetus, placenta, and membranes, is an etiological theory worthy of consideration. Proteolytic assays were performed on normal amniotic fluid with the use of two substrates, gelatin and human plasma clot. These methods failed to demonstrate any evidence of proteolysis. The amniotic fluid of the patient in case 4, in whom hypofibrinogenemia failed to develop, was also negative for proteolysis. Unfortunately, the patient in case 3 was not tested. As reported by others,⁹ the influence of naturally occurring fibrinolysins could also account for the lytic action observed in the macerated stillborn type of hypofibrinogenemia. In a study conducted over the past several months, fibrinolysis during pregnancy and delivery has been investigated. Our studies leave no doubt that, in normal pregnancy, delivery is followed by increased fibrinolysis. The importance of naturally circulating fibrinolysins in the macerated stillborn type of hypofibrinogenemia cannot be evaluated at this time.

MANAGEMENT

Efficient management of hemorrhage from hypofibrinogenemia calls for appreciation of the many factors involved. Inadequate knowledge of the precise causes obscures prophylactic treatment. Sufficient clinical experience, nevertheless, demonstrates the value of preparedness when faced by an Rh-isosensitized patient harboring a dead fetus and also by a patient with abruptio placentae. The rapidity with which disintegration of the blood coagulation mechanism occurs in abruptio placentae leaves little time for other than emergency care. The macerated stillborn type permits adequate time for evaluation.

Laboratory evaluation of blood fibrinogen is a standard procedure. Weiner and others stressed the use of a valuable test that can be employed by the obstetrician

2. Schneider, C. L.: Complications of Late Pregnancy in Rabbits Induced by Experimental Placental Trauma, *Surg., Gynec. & Obst.* **90**: 613-622 (May) 1950.

3. Page, E. W.; Fulton, L. D., and Glendening, M. B.: Cause of Blood Coagulation Defect Following Abruptio Placentae, *Am. J. Obst. & Gynec.* **61**: 1116-1122 (May) 1951.

4. Ratnoff, O. D., and Conley, C. L.: Studies on Afibrinogenemia: Defibrinating Effect on Dog Blood of Intravenous Injection of Thromboplastic Material, *Bull. Johns Hopkins Hosp.* **88**: 413-424 (May) 1951. Ratnoff, O. D., and Vosburgh, G. J.: Observations on Clotting Defect in Amniotic-Fluid Embolism, *New England J. Med.* **247**: 970-973 (Dec. 18) 1952.

5. Page, E. W.; Glendening, M. B.; Strei, L., and Scott, K. G.: Fate of Intravenously Injected Placental Extracts, *Am. J. Obst. & Gynec.* **65**: 789-795 (April) 1953.

6. Weiner, A. E., and Reid, D. E.: Pathogenesis of Amniotic-Fluid Embolism: Coagulant Activity of Amniotic Fluid, *New England J. Med.* **243**: 597-598 (Oct. 19) 1950.

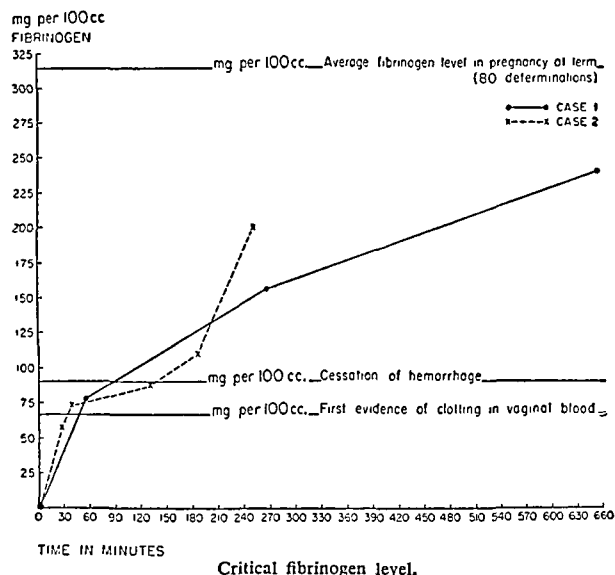
7. Stefanini, M.; Campbell, E. W.; Pittman, G. I., and Salomon, L.: Coagulation Defects Due to Acquired Anticoagulants and Fibrinolysis: Their Detection and Treatment, *Bull. New England M. Center* **15**: 23-31 (March) 1953.

8. Innerfield, I.; Schwartz, A., and Angrist, A.: Intravenous Trypsin: Its Anticoagulant, Fibrinolytic and Thrombolytic Effects, *J. Clin. Invest.* **31**: 1049-1056 (Dec.) 1952.

9. Weiner, A.; Reid, D. E., and Roby, C. C.: Hemostatic Activity of Amniotic Fluid, *Science* **110**: 190-191 (Aug. 19) 1949. Coon, W. W., and Hodgson, P. E.: Fibrinolysis in Surgery Patients: I. Possible Relationship to a Hemorrhagic Diathesis, *Surg., Gynec. & Obst.* **95**: 717-725 (Dec.) 1952.

for detection of fibrinolysis. Blood is allowed to clot in a glass test tube at 37 C and is observed at intervals for 24 hours. If the clot dissolves, fibrinolysis is present. This is of value in the detection of the macerated stillborn type. A simplified bedside method for plasma fibrinogen determination is described by Schneider.¹⁰

For successful treatment, fibrinogen replacement may be essential. This is best accomplished through natural regeneration, which occurs in a matter of a few hours. During acute depression of fibrinogen, hemorrhage is profuse and fibrinogen replacement is required. As suggested by Weiner and others, this can best be accomplished by intravenous administration of fibrinogen (2,000 to 8,000 mg.) in saline solution. Unfortunately, fibrinogen is not commercially available; moreover, the virus of infectious hepatitis is concentrated in the fibrinogen fraction, making the use of such fibrinogen hazardous. Until preparations of fibrinogen are commercially available, blood transfusions must be depended on for replacement of fibrinogen.



Weiner stated that a single 500 cc. whole blood transfusion could be expected to elevate the blood fibrinogen level about 10%. To replace fibrinogen from an extremely low level to the normal level by blood transfusions is an almost impossible task. Fortunately it is not necessary to restore fibrinogen levels to normal to control hemorrhage. Although the critical level of blood fibrinogen is not precisely known, some information can be obtained from a study of cases 1 and 3. In case 1, clots appeared in the vagina when the blood fibrinogen was reported to be 78.4 mg. per 100 cc., and active bleeding ceased three hours later. It is estimated that the blood fibrinogen ranged near 100 mg. per 100 cc. at that time. In case 3, clots appeared in the vagina and bleeding abruptly ceased when the fibrinogen reached 87.5 mg.

From these observations, we think the critical fibrinogen level may be about 90 mg. (see figure). The rapidity with which fibrinogen is regenerated is a subject of considerable interest. In case 1 fibrinogen was regenerated, with the aid of one 500 cc. blood transfusion, from zero to 78.4 mg. per 100 cc. in 105 minutes. In case 3, a 1,000 cc. blood transfusion was administered along with calcium, protamine sulfate, 100 mg., and corticotropin (ACTH), 35 mg. The fibrinogen level rose from zero to 87.5 mg. per 100 cc. in 130 minutes. In these two cases fibrinogen therapy was necessary for just a little over two hours.

Stefanini and Gendel¹¹ reported on a patient suffering from a coagulation defect characterized by hypofibrinogenemia and increased fibrinolysis that failed to respond to fresh whole blood, fresh lyophilized plasma and serum, purified preparations of thromboplastinogen, prothrombin, and plasma prothrombin conversion factor. Cortisone arrested the bleeding, decreased the fibrinolytic activity, and prolonged the survival time of the various clotting proteins. In case 3, we administered corticotropin. Clots appeared in the vaginal blood 10 minutes after administration of the drug. The value of fresh blood as opposed to bank blood in the treatment of this syndrome is a question of practical value. Fibrinogen, Ac-globulin, and prothrombin will not deteriorate during storage in the blood bank. Blood platelets rapidly deteriorate in storage. For this reason fresh blood would appear to be of more value than platelet-deficient bank blood.

Subjecting a patient suffering from such a coagulation defect to a major operation is hazardous. Unfortunately, for emergency measures, this is sometimes necessary. Rapid evacuation of the uterus is at times necessary in abruptio placentae. The importance of administration of blood or fibrinogen in such instances can hardly be overemphasized. Hysterectomy for uncontrollable postpartum hemorrhage is an accepted emergency procedure. With the diagnosis of critical deterioration of the blood coagulation mechanism, hysterectomy can hardly be considered a measure of therapeutic value. Bleeding will stop with therapeutic elevation of the fibrinogen level. Amniotomy during labor, for release of intraovular fluid, could theoretically reduce maternal absorption. The value of this procedure must await clinical trial. Stimulation of labor with oxytocics, when the membranes are intact, is a procedure of questionable merit. Forceful labor contractions could increase maternal absorption of amniotic fluid. Theoretically, fibrinogenopenia would be increased.

SUMMARY AND CONCLUSIONS

Two obstetric complications leading to hypofibrinogenemia and defective blood coagulation are compared. The abruptio placentae type causes fibrinogen-fibrin conversion as the result of absorption into the maternal circulation of thromboplastin. Symptoms are coincident with placental separation. In the macerated stillborn type the onset of symptoms is gradual and is not dependent on placental separation. Several possible causal factors are discussed. Successful treatment depends on elevation of the blood fibrinogen above the critical level of about 90 mg. per 100 cc. Natural regeneration of fibrinogen is

10. Schneider, C. L.: Rapid Estimation of Plasma Fibrinogen Concentration and Its Use as a Guide to Therapy of Intravascular Defibrination, *Am. J. Obst. & Gynec.* 64: 141-147 (July) 1952.

11. Stefanini, M., and Gendel, B. R.: Influence of Fibrinolysin on Survival in Vivo of Various Coagulation Factors and Favorable Effect of Cortisone in Fibrinolytic Purpura, *Proc. Am. Fed. Clin. Res.* 1: 5 (April) 1953.

prompt. Administration of fibrinogen is of proved value, but fibrinogen is not commercially available. Until it is, obstetricians must depend on whole blood transfusions in the treatment of hypofibrinogenemia. Some evidence is presented that corticotropin or cortisone may be of value in the treatment of the macerated stillborn type of hypofibrinogenemia.

Cesarean section, to effect prompt delivery, is at times necessary. Blood should be available in adequate quantities before this procedure is undertaken. Hysterectomy for the treatment of hemorrhage from hypofibrinogenemia is not recommended, as this only adds to the source of hemorrhage.

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CLINICAL AND LABORATORY OBSERVATIONS OF A NEW ANTIBIOTIC, TETRACYCLINE

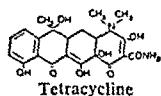
Maxwell Finland, M.D., Elmer M. Purcell, M.D., Samuel S. Wright, M.D.

Ben Del Love Jr., M.D., Thomas W. Mou, M.D.

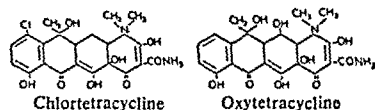
and

Edward H. Kass, M.D., Ph.D., Boston

The chemical structures of chlortetracycline (Aureomycin)¹ and oxytetracycline (Terramycin)² have now been resolved after many months of chemical and biological studies. The close similarity in the chemical structures of these two antibiotics, which was revealed by these studies, had long been suspected on the basis of the almost identical spectrums of their antimicrobial activity and from the almost complete cross resistance between them.³ Common to both of these antibiotics is the following structure:



The name tetracycline has been proposed for this antibiotic. Chlortetracycline differs from oxytetracycline by the presence of one chlorine atom in the former that is absent from the latter and the presence of a hydroxyl group in oxytetracycline that is absent from chlortetracycline. The structures of these two antibiotics are as follows:



The preparation of tetracycline by the catalytic hydrogenation of chlortetracycline, using palladium as a catalyst, was reported recently by workers of both the Lederle Laboratories⁴ and of Chas. Pfizer and Company.⁵ Further observations on the physical and chemical properties of this new antibiotic and the results of laboratory and clinical investigations with tetracycline were described in a group of papers presented on Oct. 28 at an antibiotic symposium sponsored by the Division of Antibiotics of the Food and Drug Administration, Department of Health, Education, and Welfare, in collaboration with the journal *Antibiotics and Chemotherapy*. These papers will be included in detail in the volume of the proceedings of this symposium, which is to be published.

The details of the preparation, the physical and chemical properties, and proof of the structure of tetracycline were presented by Boothe and co-workers.⁶ In a second paper Bohonos and co-workers⁷ compared the anti-

bacterial action of the three tetracyclines in vitro, using three different methods, namely, streak-plate, agar-diffusion, and broth-turbidimetric tests. The three antibiotics were found to have similar patterns of antibacterial action, but they differed markedly in chemical stability. These differences resulted in quantitative variations in their apparent in vitro activities. In the agar diffusion (cup plate) method, at pH 6.0, all three produced larger zones of inhibition than at pH 7.8, but chlortetracycline showed significantly higher activity than the other two agents at the lower pH levels. In the turbidimetric tests, the order of activity of the three analogues changed depending on the time when readings were made; with short incubation periods, chlortetracycline was generally the most active, but when the incubation period was extended, chlortetracycline became less active. However, after extended periods of incubation, cultures from the tubes showing partial inhibition showed the same sensi-

From the Thorndike Memorial Laboratory, second and fourth medical services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School.

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The chlortetracycline (Aureomycin) used in this study was provided by Dr. Stanton M. Hardy, Lederle Laboratories Division, American Cyanamid Company, and the oxytetracycline (Terramycin) by Dr. Gladys L. Hobby, Chas. Pfizer and Company.

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2. Stephens, C. R., and others: Terramycin: VIII. Structure of Aureomycin and Terramycin, *J. Am. Chem. Soc.* **74**: 4976-4977 (Oct. 5) 1952.

3. Pansy, F. E.; Khan, P.; Pagano, J. F., and Donovan, R.: The Relationship Between Aureomycin, Chloramphenicol, and Terramycin, *Proc. Soc. Exper. Biol. & Med.* **75**: 618-620 (Nov.) 1950. Kaipainen, W. J.: Does Induced Resistance of Bacteria to One Antibiotic Result in Simultaneous Sensitivity Changes to the Other Antibiotics? *Ann. med. exper. et biol. Fenniae* (suppl. 1) **29**: 1-96, 1951. Fus'illo, M. H., and Romansky, M. J.: The Simultaneous Increase in Resistance of Bacteria to Aureomycin and Terramycin upon Exposure to Either Antibiotic, *Antibiotics & Chemother.* **1**: 107-109 (May) 1951. Monnier, J. J., and Schoenbach, E. B.: The Resultant Sensitivity of Microorganisms to Various Antibiotics After Induced Resistance to Each of These Agents, *ibid.* **1**: 472-486 (Oct.) 1951. Gocke, T. M., and Finland, M.: Cross-Resistance to Antibiotics: Effect of Repeated Exposure of Bacteria to Aureomycin, Terramycin, Chloramphenicol or Neomycin on Resistance to All of These Antibiotics and to Streptomycin and Penicillin, *J. Lab. & Clin. Med.* **38**: 719-735 (Nov.) 1951.

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5. Conover, L. H., and others: Terramycin: XI. Tetracycline, *J. Am. Chem. Soc.* **75**: 4622 (Sept. 20) 1953.

6. Boothe, J. H., and others: Chemistry of Tetracycline, to be published.

7. Bohonos, N., and others: In Vitro Studies with Chlortetracycline, Oxytetracycline and Tetracycline, to be published.

tivity as the original ones, indicating that this phenomenon was not the result of induced resistance. When the readings were done at three hours, in a test carried out at pH 7 and using *Micrococcus pyogenes* var. *aureus* (*staphylococcus aureus*), chlortetracycline was much more active than the other two.

The results of studies on the stability of these three analogues were also reported.⁷ At 37 C and pH 8, oxytetracycline was the most stable, but only slightly more than tetracycline, while chlortetracycline was the least stable under these conditions. However, at pH 7, tetracycline was definitely the most stable of the three. After being heated at 100 C for 15 minutes, tetracycline showed the least loss of activity over a wide range of pH, but were more stable at pH 2.5 than at pH 7 or 9.

The results of pharmacological studies of tetracycline in mice, rats, and dogs were presented by Cunningham and his co-workers.⁸ Tetracycline was shown to be relatively nontoxic when given in moderate or large doses intravenously to mice, intraperitoneally to rats, and orally to dogs. No significant changes were observed in dogs after daily intravenous injections of doses of 10 to 30 mg. per kilogram of body weight for 23 days with respect to kidney function, blood clotting, nonprotein nitrogen, blood sugar, and complete blood cell counts. No untoward reactions were seen in dogs receiving 100 mg. per kilogram by mouth twice daily, 5 days a week, over a 12 day period. The tetracycline showed no significant antispasmodic, anticoagulant, cardiovascular, or respiratory effects. The antibiotic was excreted rapidly by the kidney and was found in the urine of rats and dogs after intravenous administration. In dogs, after a single intravenous injection of 500 mg. per kilogram there were appreciable blood levels for at least 24 hours. Tetracycline was readily absorbed from the gastrointestinal tract of the rat and dog. The antibiotic was found to be concentrated in the bile, substantial quantities being detected five hours after a single intravenous injection of 10 mg. per kilogram. Tetracycline was found to cross the blood brain barrier, and an average concentration of 0.56 mcg. per milliliter was found in cerebrospinal fluid five hours after a single intravenous injection of 10 mg. per kilogram in normal dogs.

A comparative evaluation of the three tetracyclines in experimental infections was reported by Kiser and his co-workers.⁹ Their tests were carried out in mice with infections induced by *Streptococcus pyogenes* strain C203, *M. pyogenes* var. *aureus*, *Diplococcus pneumoniae* type 1, *Pasteurella multocida*, *Klebsiella pneumoniae* type B, and *Mycobacterium tuberculosis* var. *hominis*, strain H37Rv, and in chicks infected with *Salmonella gallinarum*. They found little difference in activity among the three antibiotics, except that chlortetracycline was found to be significantly more effective against *Pasteurella* organisms. Oxytetracycline was found to be considerably less active than the other two

in the tests with *K. pneumoniae*, and chlortetracycline was essentially inactive in *Myco. tuberculosis* infection in mice.

Similar observations confirming or extending many of these details, with only minor differences in results, were presented by English and associates.¹⁰ Still another series of observations, which likewise confirm many of these findings, was reported by Minieri and co-workers¹¹ of the Heyden Chemical Corporation; the tetracycline used in the latter studies, however, was reported to have been produced by direct fermentation, using a new strain of organism isolated from a sample of soil obtained from Texas.

The present paper deals primarily with some laboratory observations made at the Thorndike Memorial Laboratory and with some clinical trials conducted on the wards of the Boston City Hospital with tetracycline provided by the Lederle Laboratories, the more recent lots of the antibiotic being furnished under the tradename Achromycin. A brief summary of many of these findings was presented at the antibiotic symposium referred to previously.

MATERIALS USED

The tetracycline was all provided as the hydrochloride in the following forms: sterile crystals in sealed, rubber-capped vials; similar material with sodium glycinate buffer and ascorbic acid added as a preservative, likewise contained in sterile rubber-capped vials; and capsules containing 200 mg. and later 250 mg. each and tablets containing 250 mg. each. Chlortetracycline was also provided as the hydrochloride in similar forms. Oxytetracycline was supplied in similar forms, except that the tablets were prepared with the free base instead of the hydrochloride.

RESULTS OF LABORATORY STUDIES

Stability.—A limited number of observations were carried out to determine the stability of the solutions of the three tetracyclines under conditions in which they may be used in the clinic or in bacteriological laboratories. Standard solutions of the hydrochloride of the three tetracyclines were made up in concentrations of 8 mcg. per milliliter or less in 0.85% sodium chloride, and citrated plasma was obtained from patients under treatment with the three tetracycline analogues. These were tested at various intervals during storage at -25 C, 5 C, and during incubation at 37 C. A strain of *Bacillus cereus* no. 5, originally obtained from Dr. Dornbush of the Lederle Laboratories, was used as the assay organism, and the tests were carried out in brain heart infusion broth (Difco pH 7.2), in part by a serial two-fold dilution test and in part using an arithmetic dilution gradient in the vicinity of the expected end-points. At -25 C (in a mechanical "deep-freeze" unit) solutions of all three analogues retained their activity essentially unaltered for at least six weeks. At 5 C (in a commercial refrigerator) the solutions of chlortetracycline showed appreciable deterioration in antibacterial activity between 24 and 48 hours; oxytetracycline showed moderate deterioration by the end of the first week, while the activity of tetracycline was unaffected in three weeks. Similar results were obtained with citrated plasma from patients being treated with these three agents.

8. Cunningham, R. W., and others: The Pharmacology of Tetracycline, to be published.

9. Kiser, J. S., and others: A Comparative Evaluation of Chlortetracycline, Oxytetracycline and Tetracycline in Experimental Infections, to be published.

10. English, A. R., and others: Tetracycline-Microbiological, Pharmacological and Clinical Evaluation, to be published.

11. Minieri, A. P., and others: A New Broad Spectrum Antibiotic Product of the Tetracycline Group, to be published.

Antibacterial Action.—Simultaneous tests for sensitivity to tetracycline, oxytetracycline, and chlortetracycline were made with 257 recently isolated strains of common pathogenic bacteria. These tests were carried out by streaking the fully grown cultures on agar plates containing serial two-fold dilutions of the antibiotics, horse blood being added to the agar when required for optimum growth of the organisms. The results were read after incubation at 37 C for 24 hours, except in the case of meningococci and gonococci, which were incubated for 48 hours. Sensitivity of the strains was measured in terms of the minimum concentration of antibiotic contained in the agar that completely or almost completely inhibited the growth of the organisms after the stated incubation period and is expressed in micrograms per milliliter. Recently isolated strains were used because of the possible changes in resistance of some organisms resulting from the use of some of these tetracycline analogues in the past few years, as is well illustrated in the case of the staphylococci.¹²

the same as for tetracycline in somewhat less than one-third of the strains; also, less than one-fourth of the strains appeared to be more sensitive to chlortetracycline than to tetracycline and almost one-half of the strains were more resistant or required greater amounts of chlortetracycline than tetracycline to inhibit. This relatively lower activity of chlortetracycline must be attributable, in a large part at least, to the deterioration of the chlortetracycline during the 24 hour or longer incubation period before the results of the tests were read.

For individual species or genera, there appeared to be some differences in the action of the individual agents, although the significance of these differences must await the accumulation of further data with larger numbers of strains. Thus, tetracycline appeared to be the most active of the three analogues against *Escherichia coli*, *Shigella sonnei*, and *Proteus* organisms. Oxytetracycline appeared to be the most active of the three agents against strains of *Pseudomonas*, and chlortetracycline appeared to be the most active against strains of *Enterococcus*,

TABLE 1.—Sensitivity of 257 Freshly Isolated Strains Tested Simultaneously with Three Tetracycline Analogues

Organism	No. of Strains Tested	Tetracycline, M.I.C., Meg./Ml.*		Comparison with Tetracycline †					
		Range	>60% >200 ‡	Oxytetracycline			Chlortetracycline		
				½	Same	2	½	Same	2
<i>Enterococcus</i>	14	1.6-200	>200 ‡	2 ¹	11	1	10 ⁵	3	1
<i>M. pyogenes</i> var. <i>aureus</i>	17	0.4-200	3.1 ‡	2	12	3	8 ¹	8	1
Hemolytic streptococcus	24	0.8-25	3.1	6 ¹	11	7 ³	4 ¹	5	15 ⁷
<i>Str. viridans</i>	15	0.1-0.8	0.4	4	10	1	0 ³	6	0
<i>Pneumococcus</i>	22	0.1-0.8	0.2	6 ¹	10	0	8 ¹	11	3
<i>Meningococcus</i> §	24	0.8-3.1	1.0	8	12	4 ¹	0	5	19 ¹⁵
<i>Gonococcus</i>	38	0.2-3.1	0.4	11 ³	18	9	2 ¹	6	30 ¹⁶
<i>Esch. coli</i>	28	1.6-0.3	0.3	4 ²	8	16 ⁹	0	6	22 ¹³
<i>A. aerogenes</i>	21	0.8-200	25	7	12	2 ¹	4 ¹	11	6 ¹
<i>S. sonnei</i>	14	3.1-12.5	12.5	0	12	2	0	5	9
<i>P. vulgaris</i>	6	50-400	200	0	0	6 ⁰	0	3	3 ²
<i>Ps. aeruginosa</i>	34	0.8-200	200	10 ⁶	14	4 ²	4 ²	12	16 ⁰
Totals	257	.....	....	60 ¹⁴	136	55 ²²	40 ¹⁵	81	127 ⁰⁰

* Minimum concentration producing complete or marked inhibition after incubation for 24 hours on antibiotic-containing agar, except for meningococci, which were read after incubation for 48 hours.

† Number of strains inhibited by one-half concentration or less (left), same concentration (middle), and two or more times as much (right); superscripts indicate number inhibited by one-quarter or less in left column and by four times or more in the column on the right.

‡ Six of the staphylococcal strains and eight of the enterococci were resistant to 200 meg. per milliliter; the rest were inhibited by 3.1 meg. per milliliter or less.

§ Dr. Sara E. Branham, National Microbiological Institute, supplied most of the strains of meningococci.

The results are summarized in table 1. Both the range of sensitivity for the various genera and species of bacteria and the minimum concentration required to inhibit two-thirds of the strains of each are listed in this table. The comparative sensitivities of the same group of strains to oxytetracycline and chlortetracycline when tested simultaneously and by the same method are shown alongside of the results obtained with tetracycline.

All of the organisms were quite similar in their sensitivity or resistance to the three antibiotics, although a number of individual strains were more sensitive to one or another of them to a degree that was probably significant and beyond the limits of error of the method. When the results of these tests are considered in toto, more than one-half of the strains were equally sensitive to oxytetracycline and to tetracycline; the rest were more or less equally divided between those more sensitive and those more resistant to oxytetracycline, the difference for most strains being within the error of the two-fold dilution method that was employed. In the tests with chlortetracycline, the minimum inhibiting concentrations were

M. pyogenes var. *aureus*, and *Str. viridans*. Chlortetracycline appeared to be inferior to the other two analogues, particularly against the meningococcus and the gonococcus, but in these instances the longer incubation period that was necessary because of the slow growth of these organisms on the mediums used was probably responsible for this apparent difference.

Growth Curves.—Growth curves were carried out with a group A hemolytic *Streptococcus* (*Streptococcus* 98) and with *B. cereus* no. 5, using both pour plates to determine the number of viable organisms and turbidimetric measurement of the density of cultures after various periods of incubation with different concentrations of the antibiotic and various sizes of inoculums. These studies, the details of which will be reported elsewhere, indicated that all three analogues acted in a very similar manner during the first few hours of incubation.

12. Finland, M., and Haight, T. H.: Antibiotic Resistance of Pathogenic Staphylococci: Study of 500 Strains Isolated at Boston City Hospital from October, 1951, to February, 1952, *A. M. A. Arch. Int. Med.* 81: 143-158 (Feb.) 1953.

After 12 hours, however, the deterioration of chlortetracycline was indicated by resumption of growth, and the greater stability of tetracycline was shown by the fact that growth was delayed longer and inhibition was more prolonged and more permanent with the latter agent than with the other two analogues.

Resistance and Cross Resistance.—In the tests for sensitivity previously referred to, organisms that were highly resistant to any one of the agents were always

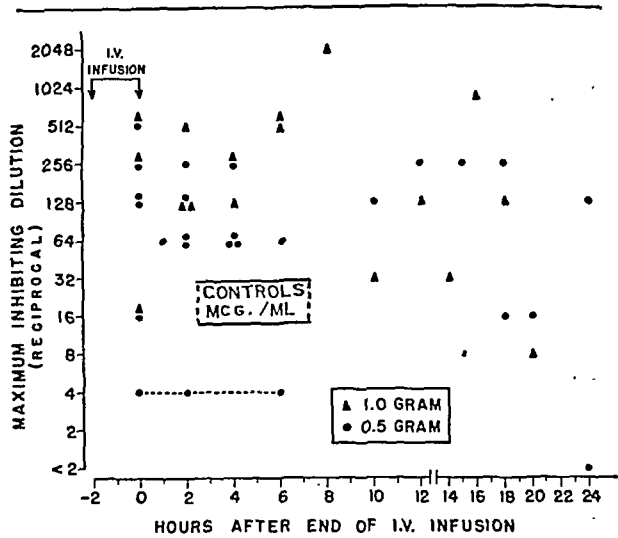


Fig. 1.—Plasma concentration of tetracycline after a single intravenous injection of 1.0 or 0.5 gm. in isotonic sodium chloride solution or dextrose solution.

resistant in about the same degree to each of the other two. A study was also made to determine specifically whether repeated and prolonged exposure of organisms to one of the three analogues in vitro would result in the development of resistance to other agents as well. Eight strains, including two of *Enterococcus*, two of *M. pyogenes* var. *aureus*, and one each of *K. pneumoniae*, *Esch. coli*, *Aerobacter aerogenes*, and *Str. viridans* were subcultured repeatedly in broth containing increasing concentrations of tetracycline and oxytetracycline. The resistance of these strains generally increased during 11 subcultures from 8-fold to 32-fold against the homologous antibiotic to which the strains were exposed. Increases in resistance to each of the two heterologous analogues to which the organisms had not been exposed developed in every instance, and in most instances the increases were of about the same order of magnitude as against the homologous antibiotic. For some strains, however, the increases in resistance to the heterologous analogues were apparently greater than to the agent to which they had been exposed.

Blood Levels.—Assays for tetracycline activity were made with venous blood of patients who were given single doses expressly for this purpose and in other patients who were under treatment with the new antibiotic. Samples of citrated plasma were assayed by a serial two-fold dilution test in broth using a 10^{-4} dilution of a 12 hour culture of *B. cereus* no. 5 as the test organism. The results were read as the minimum dilution of plasma producing complete inhibition of growth after 18 hours incubation at 37 C, and the concentrations

of antibiotic were determined from this dilution by comparison with parallel assays of standard solutions of the antibiotic carried out at the same time. The results of such assays following single intravenous injections of 1.0 or 0.5 gm. of tetracycline hydrochloride, given as an effusion in 1.0 or 1.5 liters of isotonic sodium chloride solution or of 5% dextrose solution, over a period of two hours, are shown in figure 1. Growth of the test organisms was generally inhibited by dilutions of plasma ranging from 1:16 to 1:512, which are equivalent to concentrations of 1 to 32 mcg. per milliliter respectively. High levels were sustained after such infusions for 12 hours, and in some patients levels ranging from 0.25 to 16 mcg. per milliliter were still present during most of the second 12-hour period.

During therapy with oral doses of 250 mg. or 500 mg. every six hours, peak concentrations were generally not achieved until after the second dose was given, and the levels were only slightly higher on or after the second day of treatment in the patients receiving doses of 500 mg. every six hours (fig. 2). An initial dose of 1.0 gm. by mouth was given to a few of these patients and resulted in somewhat higher levels during the first 12 hours. With the 500 mg. doses, more or less uniform levels were obtained and ranged from 1 to 8 mcg. per milliliter in most patients after the first 12 hours of treatment. Levels of 16 mcg. per milliliter of plasma have been found in several specimens obtained during treatment with this dosage. The dose of 250 mg. every six hours was given chiefly to patients with urinary tract infections, some of whom had impaired renal function. The resulting blood levels were, therefore, more irregular, but generally ranged from 0.25 to 16 mcg. per milliliter throughout several days of continuous treatment. In a few patients, observations made after the last dose

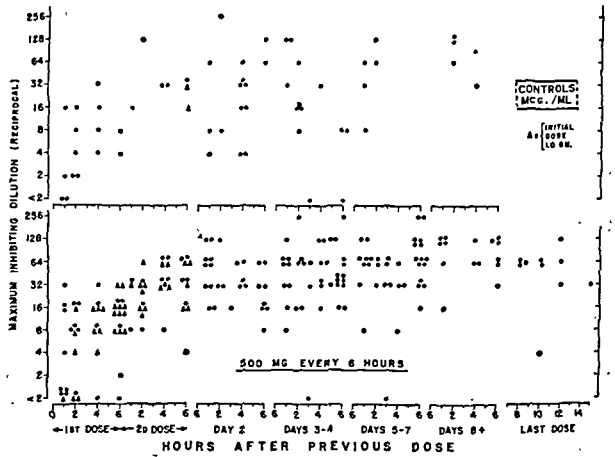


Fig. 2.—Plasma concentration of tetracycline during therapy with 250 mg. given every six hours.

indicated that appreciable concentrations of tetracycline were present in the plasma for 12 hours or longer in most patients.

A carefully controlled experiment was carried out in 12 volunteers, all of whom received single doses of 1.0 gm. of each of the three tetracyclines by mouth in rotation at different times without any of the participants knowing which of the antibiotics they were taking. Details of this experiment will be published elsewhere,

but the results may be summarized here briefly. With all three agents, the peak levels were achieved between four and six hours, and generally ranged from 1 to 4 mcg. per milliliter of plasma. The levels were sustained at or near these peaks in almost every instance for eight hours after administration of each of the agents and, in most of the subjects tested, similar levels were still present in the plasma 12 hours after the dose was taken. The average concentrations of the antibiotics for all of the subjects were highest after the ingestion of tetracycline and lowest after ingestion of oxytetracycline. These comparisons were made on the basis of readings of the assay test after 18 hours of incubation. When the tests were read at 24 hours, the deterioration of chlortetracycline was evident, and by 40 hours, no inhibition could be demonstrated in any of the serums from the subjects who received chlortetracycline. There was only a slight reduction in the concentrations that were inhibitory after these longer incubation times in the plasmas taken after the doses of oxytetracycline, while the levels following ingestion of tetracycline were essentially unchanged. Some of the lower levels obtained following ingestion of oxytetracycline may have been due to the fact that half of the subjects were given this analogue in the form of tablets of the free base; two subjects who received such tablets showed no demonstrable levels in the blood at any time, and the average for the remaining subjects was somewhat lower than in those who received the oxytetracycline in the form of capsules of the hydrochloride.

Urinary Excretion.—Samples of urine obtained at random in patients under treatment with tetracycline showed high concentrations of this agent, ranging from 40 to more than 1,000 mcg. per milliliter. In the controlled experiment on absorption following the ingestion of a single dose of 1 gm., each of the three tetracycline analogues appeared rapidly in the urine so that samples obtained two hours after the dose was taken contained between 20 and 320 mcg. per milliliter. The urine specimens collected between 2 and 12 hours after the dose yielded antibiotic levels ranging from 160 to 640 mcg. per milliliter in most instances, and those obtained in the next 12 hours still showed from 40 to 160 mcg. in most instances and even higher concentrations in some. Total amounts ranging from 9 to 21% of the ingested 1 gm. dose were recovered during the first 12 hours from each of the subjects and with each of the agents, except for two subjects who had received tablets of the free oxytetracycline base; from one of these subjects only 3% and from the others 6% of the administered dose was recovered during the first 12 hours. An additional 4 to 7% of the administered dose was recovered during the second 12 hour period in most instances, but in individual subjects considerably larger amounts were recovered during this period.

Spinal Fluid Levels.—Simultaneous specimens of blood and spinal fluid were obtained from 7 patients without meningitis at varying intervals after single injections of 0.5 to 1.0 gm. of tetracycline given over a two hour period. Tetracycline activity was demonstrated in the spinal fluid in two of these subjects and in concentrations equivalent to $\frac{1}{8}$ and $\frac{1}{32}$ of the simultaneous blood levels, respectively. In the other five, including

two who showed only minimal levels in the plasma, no activity could be demonstrated by the test used. Additional data concerning spinal fluid gradients of tetracycline analogues were presented at the antibiotic symposium by Wood, Kipnis, and Dowling.¹³ They showed that tetracycline was more regularly demonstrated in spinal fluid and at relatively higher concentrations than each of the other two analogues.

CLINICAL TRIAL

From May through October, 1953, 118 patients were treated with tetracycline hydrochloride given in tablets or capsules orally, by intravenous injection, or by both routes. Almost all of these patients were adults on the medical wards of the Boston City Hospital. In general, all patients admitted to the wards on which this study was being conducted and in whom a broad-spectrum antibiotic was indicated or justifiable were treated with

TABLE 2.—Dosage of Tetracycline Used in 118 Cases

Regimen	Dosage *	No. of Patients †
Intravenous only.....		5
200 mg. every 4 hours (5 or 6 times daily).....		29 (5)
250 mg. every 6 hours.....		23 (2)
250 mg. every 4 hours.....		5 (1)
500 mg. every 6 hours.....		56 (5)
Total Dose		
Intravenous only, 0.5-3.0 gm.....		5
Less than 5 gm.....		14
5-9 gm.....		41 (7)
10-19 gm.....		50 (4)
20-29 gm.....		6 (2)
30 gm. or more.....		2 ‡
Average dose = 10.7 gm.		
Duration of Treatment		
1 dose only.....		3
2-4 days.....		24
5-7 days.....		61
8-14 days.....		27
15 days or longer.....		3 §
Average duration = 7 days		

* By oral administration unless otherwise specified.

† The number of patients receiving initial doses intravenously are shown in parentheses.

‡ One of these patients received 42 and the other 52 gm.

§ Treatment was continued in these cases 18, 21, and 26 days.

tetracycline alone. Patients who had previously received other antimicrobial agents were excluded unless those agents had definitely failed to control the infection and had already been discontinued for several days.

Dosage.—A summary of the various dosage regimens and the total amounts and duration of therapy used in the patients in this study is given in table 2. About one-half of the patients received oral doses of 500 mg. every six hours; the rest received either 200 or 250 mg. every four or six hours. An initial oral dose of 1.0 gm. was given to a number of the patients on each of the regimens, and some of those who received individual doses of 200 or 250 mg. were given 500 mg. initially. Intravenous doses of tetracycline hydrochloride were given in 0.5 to 1.0 gm. amounts dissolved in 1.0 or 1.5 liters of isotonic sodium chloride solution by slow infusion at intervals of 12 hours or longer; this was the only therapy used in 5 patients, but it was used during the

13. Wood, W. S.; Kipnis, G. P., and Dowling, H. F.: Blood and Cerebrospinal Fluid Gradients of Tetracycline Analogues, to be published.

first day or 2 in 13 additional patients before oral dosage was started. The total amount given intravenously did not exceed 3.0 gm. in any of the patients. The total amount given orally varied from a single dose of 500 mg. (in a "terminal" case) to 52 gm. in 26 days. Most of the patients received between 5 and 15 gm. over a period of 4 to 10 days, and the average total dose was 10.7 gm. in 7.0 days.

Clinical and Bacteriological Results.—The various types of infections treated and the general estimate of the benefits attributable to tetracycline therapy in these

TABLE 3.—Estimated Clinical and Bacteriological Responses of 118 Patients to Tetracycline Therapy

Diagnosis	Excellent Response	Improvement	Indeterminate	No Effect
Acute Urinary Tract Infections (14)...	11	3	0	0
Esch. coli	10*	1	..	..
<i>M. pyogenes</i> var. <i>aureus</i>	1	..	..	..
Proteus	..	1	..	..
Enterococcus	..	1	..	..
Acute Exacerbation of Chronic Urinary Tract Infection (33).....	7	10	13	5
Esch. coli	2	6	4	1
<i>A. aerogenes</i>	2	1	..	..
Proteus	..	..	2	1
<i>Ps. aeruginosa</i>	..	2	..	..
Mixed infections.....	3	1	7	3
Pneumonia (15)	13	2	0	0
Pneumococci (specific types)....	9*	..	..	..
Probably pneumococci	2	1	..	..
<i>M. pyogenes</i> var. <i>aureus</i>	2	..	..	..
Primary atypical (with cold agglutinins)	..	1	..	..
Chronic Bronchopulmonary Infections with Acute Exacerbations (27)....	3	13	9	2
Pneumococcus predominant	1	1	..	..
<i>H. influenzae</i> predominant.....	2	5	1	..
<i>M. pyogenes</i> var. <i>aureus</i> predominant	..	..	2	..
Tuberculous	..	..	..	2
Mixed infections	..	7	6	..
Miscellaneous (27)	14	2	10	1
Hemolytic streptococci pharyngitis	6	..	..	..
Pneumococci pharyngitis	1	..	..	..
<i>M. pyogenes</i> var. <i>aureus</i> bacteremia and furunculosis	1	2	..	..
<i>A. aerogenes</i> bacteremia.....	1†	..	..	..
Acute epididymitis (<i>Esch. coli</i>)...	1	..	..	..
Others	4‡	..	10§	1‡
Totals.....	48	30	32	8

* Two of these patients had bacteremia.

† These patients had hepatic coma.

‡ There was one case each of acute gastroenteritis, Sonne dysentery, otitis media, and fever of undetermined origin.

§ Therapy was for prophylaxis in patients with myocardial infarcts in four cases, fever of undetermined origin in two, acute cholecystitis, perineal cellulitis, infected dermatitis, and infectious mononucleosis in one each.

cases are listed in table 3. In a major proportion of the patients, treatment was given for urinary tract infections; the majority of these patients had chronic or recurrent infections complicated by irremediable obstructive lesions or by indwelling catheters. Only a few such patients yielded excellent clinical or bacteriological results, while others were definitely improved; however, nearly one-half of them had mixed infections and most of these patients were not clearly benefited by the tetracycline treat-

ment. In many of them there was temporary improvement associated with disappearance of one or more of original infecting organisms only to be followed by rapid return of bacilluria or pyuria accompanied by the presence of organisms not isolated in the pretreatment cultures. The patients with acute infections of the urinary tract, on the other hand, showed excellent results, both clinical and bacteriological; most of these were infections with *Esch. coli*.

Similar results were obtained in pulmonary infections. The patients with uncomplicated acute pneumonia all responded well; most of these were pneumococcal and some of the others were probably of pneumococcal etiology according to their clinical behavior, although a pneumococcus was not definitely identified. There were two patients with staphylococcal pneumonia who also responded favorably. The patients with chronic bronchopulmonary suppuration, many of them with mixed infections, showed variable but rarely spectacular results; most of these patients were treated during acute exacerbations and had in their sputums a variety of organisms, many of which are not usually considered to be respiratory pathogens (including coliform organisms). Patients in whom *Hemophilus influenzae* predominated in the sputum generally showed definite clinical and bacteriological improvement during treatment.

The patients with acute hemolytic streptococcal pharyngitis showed excellent clinical and bacteriological responses in every instance. Among those with miscellaneous infections there were three patients with staphylococcal bacteremia, one with *A. aerogenes* bacteremia complicating hepatic coma, one with acute gastroenteritis (possibly staphylococcal), a case of Sonne dysentery (due to *S. sonnei*), and one with suppurative otitis media, all of whom showed excellent or good clinical and bacteriological responses. The other patients included some with fevers of unknown etiology, others with myocardial infarcts and congestion in the lung associated with fever, patients with hepatic coma, one with acute cholecystitis, and one with an ulcer around the perineum due to a mixed infection; in these patients the effect of tetracycline was generally indeterminate or nil.

On the whole, it may be said that the therapeutic results with tetracycline in the present study were similar in every respect to those obtained in a recent controlled clinical study, carried out on the same wards, in which the effects of oxytetracycline and chlortetracycline were compared.¹⁴ Obviously, a much more extensive and thoroughly controlled study would be required to detect any possible differences in clinical activity of tetracycline from that of the earlier two analogues.

Untoward Effects.—The most striking and encouraging feature of the clinical trial of tetracycline was the relatively low frequency of toxic effects observed, in contrast to the previous experience with chlortetracycline and especially with oxytetracycline, in similar types of patients, with similar infections, previously treated with comparable or smaller doses and on the same medical wards. All of the untoward effects observed from tetracycline in the present study were limited to symptoms referable to the gastrointestinal tract, but these were distinctly less frequent and less severe than those pre-

¹⁴ Finland, M.; Grigsby, M. E., and Haight, T. H.: Efficacy and Toxicity of Oxytetracycline (Terramycin) and Chlortetracycline (Aureomycin): With Special Reference to the Use of Doses of 250 Milligrams Every 4 or 6 Hours and to the Occurrence of Staphylococcal Diarrheas, A. M. A. Arch. Int. Med. 93: 23 (Jan.) 1954.

vously noted in the comparative study with oxytetracycline and chlortetracycline. In that study, as shown in table 4, diarrhea occurred about twice as frequently in patients treated with oxytetracycline (19%) as in those treated with chlortetracycline (10%). Moreover, staphylococci were present quite regularly as the only or predominant organism in the frequent and watery diarrhea.

TABLE 4.—*Untoward Effects Observed During Tetracycline Therapy Compared with Effects of Oxytetracycline and Chlortetracycline**

Untoward Effect	Patients Treated with		
	Oxy-tetra-cycline	Chlor-tetra-cycline	Tetra-cycline
Sore mouth (tongue or throat) only.....	2	5	1
Nausea and/or epigastric distress only.....	14	3	0
Nausea and vomiting.....	10	16	2
Nausea, vomiting, and diarrhea.....	10	11	1
Diarrhea without vomiting.....	28	16	4
All diarrhea, % of patients treated.....	19	10	4
<i>M. pyogenes</i> var. <i>aureus</i> predominating in feces of patients with diarrhea/no. of such patients in whom cultures were made.....	27/38	4/22	17/5
Rash and fever.....	1	1	0
Drug fever (?).....	0	2	0
Soft bulky stools.....	16	19	1
No untoward effects †.....	165	230	110
Total no. of patients treated.....	236	284	118
% without untoward effects †.....	70	81	93

* The patients were treated with oxytetracycline and chlortetracycline on the same wards in a controlled study in 1951-1952, reported in detail elsewhere; most of these patients received 250 mg. every four or six hours, but a few were treated with 500 mg. every four or six hours.

† Includes patients with soft bulky stools without diarrhea.

reah stools associated with oxytetracycline therapy, but they occurred in only a small number of the patients during treatment with chlortetracycline.

In the present study, five patients had diarrhea from oral tetracycline therapy; the diarrhea was mild and brief except in one patient in whom it lasted for two days. Moreover, only one had a large number of staphylococci (mixed in this case with a large number of enterococci) in the feces. One other patient had a moderate number of staphylococci in the stools, but other common fecal organisms predominated in the same specimens. Nausea and vomiting were noted in two patients, large bulky stools in one, and a sore, beefy tongue in another. No other toxic effects were observed during tetracycline therapy in this study. Several patients had diarrhea or nausea and vomiting before treatment with tetracycline was started that subsided during the treatment. Diarrhea occurred in one patient following vigorous catharsis, and vomiting in another was attributable to over-digitalization during tetracycline therapy; these episodes necessitated brief interruption of tetracycline therapy, which was later resumed without untoward effects. Most of the toxic effects from oral therapy observed in the present study occurred in patients who received the tetracycline in the form of tablets. Although almost twice as many patients were treated with tetracycline hydrochloride in capsules, only one of them had diarrhea and another experienced a sore, beefy tongue during treatment; all of the remaining gastrointestinal disturbances were experienced by the patients who received tetracycline tablets. The occurrence of untoward effects from each of the various lots of tetracycline hydrochloride that were used in the present study is summarized in table 5.

There were no untoward effects whatever from intravenous infusions of tetracycline hydrochloride in 0.5 to 1.0 gm. amounts in single or multiple doses at 12 to 24 hour intervals, but not exceeding a total of 3.0 gm. in any one patient during this study. All but 5 of these 18 patients who received intravenous tetracycline therapy subsequently received oral therapy.

Many additional patients were given single oral doses of tetracycline hydrochloride in capsule or tablet form in amounts ranging from 0.25 to 1.0 gm. for various studies. No toxic effects were observed in any of these patients. In the control study previously mentioned, when the 12 subjects each received 1 gm. of each of the three analogues in rotation without at any time knowing which they were getting, the differences in the gastrointestinal toxicity from the three antibiotics were clearly discernible. No untoward effects whatever were observed following the ingestion of 1.0 gm. of tetracycline in these 12 subjects, except for one who passed 3 soft bulky stools during one day. On the other hand, with the same dose of oxytetracycline given to the same 12 subjects, either before or after the tetracycline therapy, diarrhea

TABLE 5.—*Untoward Effects of Tetracycline Hydrochloride Therapy*

Lot	Form	Dose, Gm./Day	Number of Patients *	Untoward Effects	
A	Capsule	1.0-1.2	28 (5)	1 sore beefy tongue	
		1.0	1	None	
		2.0	1	None	
B	Capsule	1.0	1	None	
		1.5	2	None	
		2.0	4	None	
C	Capsule	1.0	12 (2)	1 diarrhea	
		2.0	20 (1)	None	
		All capsules	1.0-2.0	75 (8)	1 sore tongue; 1 diarrhea
D	Tablet	1.0	6 (1)	1 mild diarrhea (3-4 loose stools)	
		1.5	2 (1)	None	
		2.0	5 (1)	1 nausea, vomiting and diarrhea	
E	Tablet	1.0	4	None	
		1.5	1	1 nausea and vomiting	
		2.0	23 (2)	1 nausea and vomiting, 2 diarrhea, 1 soft, bulky stools	
		All tablets	0.5-2.0	41 (5)	2 nausea and vomiting 1 nausea, vomiting and diarrhea 3 diarrhea 1 loose, bulky stools
F	Intravenous	0.5-2.0	18	None	

* The figures in parentheses are the number of patients who received initial doses intravenously. Only five patients received all of the tetracycline intravenously. Three patients received both lots D and E, 2.0 gm. daily of each, without untoward effects from either.

† One of these patients was receiving large doses of *p*-aminosalicylic acid with isoniazid orally and streptomycin intramuscularly at the same time.

occurred in five and lasted in them from two to five days. Nausea accompanied the diarrhea in one instance and was present in another subject who did not have diarrhea. Flatulence was experienced by one of the subjects who had diarrhea after taking oxytetracycline and by another who was free of any other symptoms. Following the dose of 1 gm. of chlortetracycline, diarrhea was ex-

perienced by two subjects, both of whom had had the same effect following the dose of oxytetracycline that they had taken four days previously; one of them had not entirely recovered from the same symptoms that occurred after the previous dose. Nausea was experienced by two other subjects and bulky stools were noted in two additional ones following the chlortetracycline dose. One of the two persons who experienced nausea from chlortetracycline had received no other antibiotic previously. This experiment therefore confirmed very clearly the relative gastrointestinal toxicity of the three agents; tetracycline was the least toxic, chlortetracycline next, and oxytetracycline produced the greatest incidence of these untoward effects.

SUMMARY AND CONCLUSIONS

The antibacterial activity of tetracycline closely resembles, and in most respects is almost identical with, that of oxytetracycline (Terramycin) and chlortetracycline (Aureomycin). There is essentially complete cross resistance among the three tetracycline analogues in vitro. Chlortetracycline is considerably less stable than either of the other two analogues when kept in solutions, particularly in an alkaline medium. Satisfactory blood levels are sustained during treatment with oral doses of 250 mg. or 500 mg. of tetracycline hydrochloride every six hours, and high concentrations are maintained in the urine during treatment with such doses. After single oral doses of 1 gm., the concentrations of antibiotic obtained in the plasma appeared to be somewhat higher with tetracycline than with the other two analogues.

A clinical trial was carried out in 118 patients treated with tetracycline, most of them for infections of the

urinary or respiratory tract. The clinical and bacteriological effects of such treatment appeared to be similar to those obtained in a recent study with oxytetracycline or chlortetracycline in similar cases. The major clinical difference between tetracycline and the other two analogues is the distinctly lower incidence of untoward gastrointestinal symptoms from tetracycline. These results suggest that further clinical trials with tetracycline are warranted.

ADDENDUM

After this paper was submitted, 61 additional patients were treated with tetracycline; 38 received capsules, 22 were given tablets, and one received all of the antibiotic intravenously. The oral dose was 250 mg. every four or six hours in 24 patients and 500 mg. every six hours in 36; 5 of the latter group received initial doses intravenously. Excellent clinical and bacteriological results attributable to tetracycline were obtained in 28 patients (including one with meningococcic meningitis who received no other antimicrobial therapy); clinical and/or bacteriological improvement resulted from treatment in 20 patients; the results were indeterminate in 11 and there was no benefit from tetracycline in the remaining 2. Of those who received capsules, one had diarrhea briefly and this was controlled with paregoric while treatment continued, and one patient complained of flatulence only. Among those treated with tablets one had nausea and vomiting on the fifth day and two others, both of whom had marked azotemia, had some vomiting before tetracycline was started and this continued intermittently during treatment.

THE TONSIL AND ADENOID QUESTION AS SEEN BY THE INTERNIST

Theodore L. Badger, M.D., Boston

Of how many operations can it be truthfully said that they are "neither dreadful in the doing nor melancholy in the event"? This unique pronouncement, which was intended to popularize the removal of tonsils by ligature, is found in the "Critical Inquiry into the Present State of Surgery" by Samuel Sharp, surgeon to Guy's Hospital, 1733 to 1757. Sharp's work is cited in an article by Mollison.¹

The tonsils, being easily visible and readily accessible, must have been among the very first of our internal organs to be removed by the surgeon's knife. Wise,² in his "Review of the History of Medicine," speaks of the Asiatic Indians, who were highly skilled in medicine 1,000 years B.C., or 460 years before Hippocrates. These Asiatics

removed troublesome tonsils saying, "They are to be seized between the blades of a forcep and drawn forward, and with a semicircular knife the third of the swelled part is to be removed. . . ." So spoke the early Asiatic. Looking into the throats of today one wonders sometimes about the progress of tonsillectomy techniques over the past 3,000 years. Five hundred years later than these Indians, Hippocrates, speaking of inflamed tonsils, wrote, ". . . introduce the finger and push aside the tonsils, rub the uvula with dry flowers of copper, give warm gargles and externally apply warm plaster of barley-flowers cooked in wine and oil."

These recommendations of Hippocrates of the treatment of tonsillitis recall something very similar to the teaching on this subject not many years ago, when hot honey gargles were used inside the throat and flavored poultices outside. So 500 years after the Asiatics began removing tonsils by early 20th century techniques, treatment of the inflamed tonsil had become conservative, or medical, under the influence of Hippocrates.

Turning to the more serious angles of the subject, I am somewhat bewildered, after all these centuries of tonsillectomies, that there still is "a tonsil and adenoid ques-

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Charles C. Colby, Reference Librarian of the Boston Medical Library, and Jane Worcester, Ph.D., Professor of Biostatistics at the Harvard Medical School, assisted in the statistical studies.

1. Mollison, W. M.: *Work of Samuel Sharp and His Predecessors: on Function and Surgery of Tonsils*, Guys' Hosp. Rep. 8: 93, 1928.

2. Wise, T. A.: *Review of the History of Medicine*, London, J. & A. Churchill, Ltd., 1867.

tion." Perhaps, however, one should attempt to unravel the weird record of benefits from tonsillectomy and see if there are good factual and statistical data to support the removal of this organ. I will not waste time on a discussion of the benefits of tonsillectomy in such varied conditions as anorexia, mental deficiency, nosebleeds, pyelitis, the respiratory allergies, and cyclic vomiting. Kaiser³ in his classic monograph on "Children's Tonsils In and Out" comes closest to good statistical devices. His analysis of the facts are shrewd, and he makes few dogmatic claims for the real benefits of tonsillectomy. In fact, when Kaiser has finished comparing the persons whose tonsils had been removed with the controls who had not been subjected to tonsillectomy, he points out only four positive benefits from the removal of tonsils and adenoids over a 10 year period: 1. Throat infections were reduced in incidence. 2. The incidence of cervical adenitis was decidedly reduced. 3. There were 30% fewer first attacks of rheumatic manifestations in persons whose tonsils had been removed. Recurrent attacks were not at all affected by tonsillectomy. 4. The incidences of scarlet fever and diphtheria were lower in persons subjected to tonsillectomy. All other claims he looked upon as dubious and without good evidence to support them. The advent of chemotherapy appears only to have modified rather than altered Kaiser's claims.

Out of the morass of speculation concerning the tonsil and adenoid question there are a few specific matters to be considered from the viewpoint of the internist. First, what are the indications for removal of the tonsils and adenoids? An observation that clearly goes to the core of the question, and the one that has most influenced my own thinking on the subject, was made by Lyman Richards⁴ some years ago in his book, "Otolaryngology in General Practice." He said, "The best results of tonsillectomy are obtained where the symptoms have been clearly referable to the tonsils and associated lymphoid tissue." Conversely, he observes that the farther complaints are from the tonsils, the poorer the results are with their removal. This concept constitutes a philosophy concerning the indications for tonsillectomy, and over the years it has restrained those who regard it well from a multitude of tonsillar sins.

Second, the hazards of tonsillectomy should be no contraindication for surgery when the need is clearly present. Nevertheless the hazards are worth serious thought. Hemorrhages can usually be stopped; shock can be combatted with care; thymic disease can almost always be discovered before it causes difficulty; and lung abscess should become even rarer with the judicious use of antibiotics, provided too much reliance is not placed on their magical qualities. Still, to the internist, these accidents associated with tonsillectomy are cause for concern when the procedure is considered so trivial and when it is used as a treatment for reasons that are not always too clear. It is also only fair to admit that the reports from our medical centers of the hazards of tonsillectomy are of the best results that can be obtained in skilled hands and that the true incidence of deaths and complications in rural areas can never be determined accurately.

Regarding the hazards of tonsillectomy, it is interesting to note how meager and inadequate are the reports of death or its causes from this procedure. An effort has been

made to cull some data from the medical literature on this subject to supplement Kaiser's widely read report. Out of these explorations only three factual and original studies were turned up, from 1922 to 1952, with information on the hazards of tonsillectomy.

The first of these was a report by Hannau Loeb⁵ in 1922 on "Fatalities Following Operations Upon the Nose and Throat Not Dependent Upon Anaesthesia—a Study of 322 Hitherto Unreported Cases." On the basis of this study, Loeb commented:

The laryngologist has become an accomplished surgeon [this in 1922] with an enormous operative material. The work has become so attractive—or perhaps so remunerative, that there are 5,000 physicians according to the American Medical Directory, or one in every thirty practitioners in the country, who profess to be qualified to practice the specialty of Laryngology. These men have an important bearing on the well being of today.

TABLE 1.—Principal Causes of 332 Nonanesthetic Fatalities Following Nose and Throat Surgery

Cause of Death	No.	Percentage
Menigitis	125	40.0
Hemorrhage	55	16.0
Respiratory tract infections.....	43	12.0
General sepsis	16	4.0
Cavernous sinus thrombosis.....	9	2.0
Rupture of maxillary sinus.....	5	2.0
All others	79	24.0
	332	100.0

TABLE 2.—Complications of Upper Respiratory Operations. Associated with 158 Nonanesthetic Deaths

Complications	Site of Operation					
	Total No.	Tonsils and Adenoids No.	Tonsils and Adenoids Per-cent-age	Intranasal No.	Intranasal Per-cent-age	Other No. Per-cent-age
Hemorrhage	56	43	77.0	4	7.0	9 16.0
General sepsis	20	16	80.0	2	10.0	2 10.0
Cavernous sinus thrombosis.....	9	3	33.0	2	22.0	4 45.0
Respiratory tract infection.....	43	31	72.0	10	23.0	2 5.0
Undetermined cause	30	16	53.0	9	30.0	5 17.0
Total.....	158	109	69.0	27	17.0	22 14.0

Loeb sent out 5,000 questionnaires; 466 physicians reported no fatalities; 322 reported fatalities carefully collated; and 4,300 did not bother to answer. The results of his findings are seen in tables 1 and 2.

One must take these figures of Loeb's perhaps with a grain of salt since they are old. Nonetheless, this is one of the few available reports of a real effort to analyze the nonanesthetic causes of death associated with tonsillectomy and other upper respiratory surgery, not only in the highly skilled medical center but across the country as a whole. This cross section of the hazards of tonsillectomy interests the internist as much as the best results of our academic centers.

The second array of interesting data found concerned deaths associated with anesthesia. In 1946, Harold

3. Kaiser, A. D.: Children's Tonsils In and Out, Philadelphia, J. B. Lippincott Company, 1932.

4. Richards, L. G.: Otolaryngology in General Practice, New York, Macmillan Company, 1939.

5. Loeb, H. W.: Fatalities Following Operations upon the Nose and Throat Not Dependent on Anaesthesia, Ann. Otol., Rhin. & Laryng. 31: 273, 1922.

Bishop⁶ reviewed the anesthetic deaths occurring in the United States between 1922 and 1931, deriving most of his information from the United States Bureau of the Census. These figures are shown in table 3.

Over the years 1922 to 1931, 15% of all the anesthetic deaths were associated with removal of tonsils or adjacent lymphoid tissue. The incidence of anesthetic deaths with tonsillectomies should be no more than with other operations except that the total number will be greater with tonsillectomies because more such operations are done by whatever route the anesthesia is given. These figures of 1932 are also old, but no such statistics are available since then. The paucity of recent studies on the hazards of tonsillectomy is a sad commentary on the absence of intellectual curiosity in this important matter.

Third, data were unearthed from the "Registrar's Report of Massachusetts for the Year 1950" based upon the New International Classification of Statistical Data that revealed eight deaths associated with operations on the tonsils or adjacent lymphoid tissue. Four of the eight persons who died were children less than 10 years

infections except when breathing is interfered with by overgrowth of lymphatic tissue or when repeated bacterial infections localize in the tonsils or the tonsillar glands.

Andrewes,⁷ in his current studies of the common cold and other vital infections at the Harvard Hospital in Salisbury, England, is doing much to unravel the enigma of the natural history of these infections and the factors that influence them. "Sore throats" fall more and more into this group of viral infections, and tonsils and adenoids, present or absent, do not appear to play much part in their course or incidence. Furthermore, the general and less tangible factor of individual resistance and susceptibility to respiratory disease is all too generally disregarded. Andrewes, in human transmission studies with the virus of the common cold, has shown that immunity to it is short-lived, lasting rarely more than three months and often as little as one month. His uninfected controls did not have colds, nor even allergic rhinitis. Of the subjects in whom the cold virus was injected intranasally, 40% had colds and 10% had characteristic symptoms of a cold that spontaneously aborted within 24 hours. In 50% of those in whom the virus was injected no cold developed at all. This knowledge of the natural history of the common cold should be useful in evaluating upper respiratory disease and leave us skeptical of current "cures" or the effects of tonsillectomy on its incidence and prevention.

There are numerous systemic diseases in which the value of tonsillectomy is still under dispute because of conflicting experimental evidence or because of varying interpretation of personal experiences. Poliomyelitis is an outstanding example. There are differences of opinion concerning the influence of tonsillectomy upon the appearance of the serious bulbar forms of that disease.⁸ The portal of entry of the poliomyelitis virus or its route of transmission through the body is not definitely known. However, it is known that fatigue and trauma are conducive to the development of paralytic forms of the disease in epidemics when the virus is prevalent in the respiratory tract and feces of large sections of the community. To the internist it is logical that not only the removal of the tonsils and adenoids but any elective surgery of the respiratory or alimentary tract should be avoided when poliomyelitis is prevalent. Fear of cutting portals wide open for entry of the virus by blood, lymph channels, or nerve axones should stay the surgeon's hand.

Cunning's⁹ poliomyelitis-tonsillectomy survey in 1949 is of interest, if only for the defects of its statistical analysis. While Cuning sees no statistical evidence that tonsillectomies have any significant relationship to the increased incidence of bulbar paralysis, his figures are unconvincing. Eley and Flake^{8a} present a more critical review of this subject with evidence difficult to disregard concerning surgery of the lymphoid tissue of the nose and throat and the associated development of the more serious forms of poliomyelitis.

The internist believes that poliomyelitis is only one of the neurotropic diseases in which the trauma of tonsillectomy and adenoidectomy should be avoided in epidemics.¹⁰ Encephalitis of any type, influenza of proved type, with its more obscurely associated encephalitides, as well as epidemics of meningococcus meningitis should be signals for the avoidance of any unnecessary surgery

TABLE 3.—Number of Operating Room Deaths Associated with Anesthesia in the United States*

Year	Total No.	Deaths Associated with Removal of Tonsils and Adenoids	
		No.	Percentage
1922.....	613	87	16.9
1923.....	474	80	16.6
1924.....	593	73	12.0
1925.....	677	116	17.1
1926.....	634	108	16.5
1927.....	695	112	16.1
1928.....	569	89	15.6
1929.....	690	100	14.4
1930.....	702	91	12.9
1931.....	678	86	12.7

* These data were derived from mortality statistics of the United States Bureau of the Census.

old, two more were between 11 and 20, one was 29, and one was 50 years of age. Most of these operations, therefore, would seem to have been routine procedures. All of the fatalities were nonanesthetic deaths. They all occurred in the small state of Massachusetts in the one year of 1950, but they give some indication of the mortality hazards of this operation if multiplied by the 48 states. The internist thus remains reserved in his attitude toward the removal of tonsils and adenoids, since a dead patient is not a good result.

Diseases of the respiratory tract, especially the common cold, are the subject of more pseudoscience and old wives' tales of "cures" than almost any other human affliction including the removal of the tonsils and adenoids. The internist looks with great skepticism upon the benefits of tonsillectomy in the prevention of respiratory

6. Bishop, H. F.: *Operating Room Deaths*, Anesthesiology 7: 651, 1946.
7. Andrewes, C. H.: *Adventures Among Viruses: I. Some Properties of Viruses*, New England J. Med. 242: 161, 1950.
8. (a) Eley, R. C., and Flake, C. G.: *Acute Anterior Poliomyelitis Following Tonsillectomy and Adenoidectomy with Special Reference to Bulbar Form*, J. Pediat. 13: 63, 1938. (b) Wilson, J. L.: *Poliomyelitis*, Oxford Med. 5: 107, 1949. (c) Wilson, M. G.; Lingg, C., and Croxford, G.: *Tonsillectomy in Its Relation to Prevention of Rheumatic Heart Disease*, Am. Heart J. 4: 197, 1928.
9. Cuning, D. S.: *Poliomyelitis-Tonsillectomy Survey, Year 1949*, Laryngoscope 60: 615, 1950.
10. Bedson, S. P., and others: *Virus and Rickettsial Diseases*, Baltimore, Williams & Wilkins Company, 1950.

on the respiratory or alimentary tracts. There are no figures available and no experimental evidence to prove this wider concept. It is reasonable, however, that in epidemics the prevalence of serious neurotropic diseases of the central nervous system, obscure as to the portal of entry, should suggest the avoidance of any surgical trauma, especially the removal of tonsils and adenoids. Such a procedure lays bare a large surface of nasopharyngeal tissue where these viruses and organisms are found.

Rheumatic fever poses another question in regard to the removal of tonsils and adenoids. Before the days of chemotherapy, Kaiser⁸ stressed the importance of removing the troublesome tonsils of children and thereby reducing the subsequent incidence of the primary rheumatic infection by about 30%. Once the rheumatic state was established, the presence or absence of tonsils had little effect on the recurrence of rheumatic fever. Much informed opinion in northeast United States holds that chemotherapy is better when tonsils are present.

There are only two observations to make concerning diphtheria: First, diphtheria carriers should have their tonsils and adenoids removed as cleanly as possible, since chemotherapy without surgery gives unsatisfactory results in eradicating the carrier state as pointed out by Banks.¹¹ Second, the differential diagnosis of the diphtheritic throat and peritonsillar abscess may be externally difficult, as all of us are well aware.¹² In World War II, it was my experience that late palatal and peripheral paralyses and polyneuritis occurred with great frequency when the diphtheritic throat was lanced in error in the belief that there was an acute peritonsillar abscess.

The human body appears to abhor the removal of tonsils and lymphoid tissue of the nasopharynx, at least "before the tonsils have stopped growing." This fact is evidenced by the amount of lymphoid tissue that grows back after the larger tonsils and adenoids have been supposedly cleaned out surgically. Lingual tonsils, adenoids,

pharyngeal lymphatics, and lymphoid tissue in the fossae of excised tonsils all appear to make a stubborn and concerted effort to replace the excised organs. In fact, so frequent is the regrowth of the lymphatics that we are seeing today the widespread use of cathode rays to destroy these lymphoid tissues for life. Schultz and Robbins¹³ and Boies¹⁴ have pointed out that the delayed destructiveness of x-rays in burning the deep and superficial tissues of the head and face can be almost too extensive for belief.

As an internist I believe that too many tonsils are still being taken out, but I am open to persuasion that this is not true. I am not convinced, however, by the analyses of results based upon the individual case history of success or failure. Rather I am interested in the adoption of modern, life table methods of statistical analysis in a retrospective study for determining the benefits, the hazards, and the causes of death associated with the removal of tonsils and adenoids. Herein lies the kernel of the "question" of tonsillectomy.

Both the physician and the patient remain deeply indebted to the skilled otolaryngologist for the safe removal of tonsils and adenoids when the need exists. Nevertheless the physician should not regard the removal of these organs as a trivial procedure. Rather it is one requiring great skill in anesthesia, in operative technique, and in postoperative care in addition to careful selection based on the needs of the patient rather than the accessibility of the organ itself. It is indeed clear that the internist and the family doctor cannot escape their share of responsibility with the otolaryngologist in decisions regarding the need and the wisdom of removal of the tonsils and adenoids.

11. Banks, H. S.: *Common Infectious Diseases: A Handbook for Students and Postgraduates*, Baltimore, Williams & Wilkins Company, 1950.

12. Neffson, A. H., and Brem, J.: Diphtheria Simulating Peritonsillar Abscess, *Arch. Otolaryng.* 25: 260, 1937.

13. Schultz, M. D., and Robbins, L. L.: Dangers of Irradiation of Hypertrophied Lymphoid Tissue of Nasopharynx, *Tr. Am. Acad. Ophth.*, p. 243 (Jan.-Feb.) 1949.

14. Boies, L. R.: Irradiation of Nasopharyngeal Lymphoid Tissue: Evaluation, *Arch. Otolaryng.* 44: 129, 1946.

THE TONSIL AND ADENOID QUESTION AS SEEN BY THE PEDIATRICIAN

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For some years it has been generally accepted that the tonsils and adenoids serve as a first line of defense in protecting the respiratory and alimentary tracts from bacterial invasion, and, as a result of this conception, some pediatricians, as well as internists, have gone so far as to believe that these tissues should never be removed or removed only in later life. Others, however, hold the view that the removal of tonsils and/or adenoids early in life does not increase the frequency of respiratory infection, and they advocate excision when the presence of these lymphoid tissues offers a hazard to the general health of the patient. This appears to be the sensible and practical position, rather than either of the two possible extremes. In discussing this question, it should be recalled that adenoid tissue and the palatine tonsils are normally present at birth. These structures generally increase in size until about the age of 3 to 5 years, after which time there is a retrograde process with almost complete elimination of adenoid tissue and a reduction in the size

of the tonsils. This normal process may be altered, however, in the presence of abnormal conditions such as repeated or chronic infections that of themselves may result in marked tissue hypertrophy and resulting chronic infection. It is in such conditions as this that the physician must weigh the effects being produced on the general health of the patient and then decide on tonsillectomy and/or adenoidectomy, regardless of age.

CONSULTATION WITH OTOLARYNGOLOGIST

How does the pediatrician look at the tonsil and adenoid question? Does he consider it only from the local manifestations, from the general health factors concerned, or from aspects such as recurrent tonsillitis in a child with congenital heart disease? These are all perti-

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nent questions, and before any of them are considered, a plea should be made for closer association between the otolaryngologist and the referring physician. To me it has always seemed poor practice of medicine to refer a patient to an otolaryngologist without first contacting him and explaining why his opinion is desired or why tonsillectomy and/or adenoidectomy are necessary; one cannot compare this situation with the referral of a patient with an obviously fractured leg to an orthopedic surgeon. In the former instances the previous history of the patient and the possible underlying hazards are really known only to the pediatrician (the family physician to children), and without this information the otolaryngologist may be at a complete loss as to why the patient was referred. Not every patient referred to the surgeon needs to have a tonsillectomy or adenoidectomy. Thus, the relationship between the two physicians is on a consulting basis, and only after such an understanding has been established can the question be solved.

IMPAIRMENT OF HEARING

The physician is familiar with tonsils that are so large that they force the uvula into the background and even a grain of corn cannot pass the barrier, and too there is the adenoid tissue that produces a deep bass sound during sleep, rather than the normal quiet purr. What is indicated in these situations need not be discussed; yet these local conditions, especially those involving the adenoid structures, may, and do, cause serious complications in infants and children. And here I have in mind particularly impairment of hearing, which may vary in degree from minimum to maximum. To me there is no greater or more serious problem. How often the physician is faced with the question of whether the child is mentally retarded or actually handicapped by impairment in hearing, hence appearing retarded! This question is of ever increasing magnitude and importance, and it often is treated so lightly at the expense of the patient's present and future health and happiness. The need of office and hospital services for persons trained in the art of detecting early changes in hearing ability, in my opinion, is one of the most important questions faced today, and the art is being developed. Classifying an intelligent deaf child as a mentally retarded person is a mistake that occurs too frequently.

The theme of the relationship of mastoiditis, with or without sinus thrombosis and septicemia, to chronically infected adenoid tissue is seen less often since the introduction of antibiotics and chemotherapy. Such agents, however, have had little, if any, influence on mouth breathing, the development of the so-called adenoid facies, inability to sleep because of impaired breathing space, and numerous other disturbances readily attributable to such chronic infections. In these conditions the answer is apparent, i. e., the removal of the infected tissues and/or irradiation as necessary. The quibble over age seems to assume academic proportions and is not of practical consideration if one is a practitioner of medicine.

GENERAL HEALTH FACTORS

What are the general health factors concerned in this question? I realize that this term is a loose one; yet it does connote some meaning. As with any low grade infection,

wherever its location, the patient does not feel well. There is listlessness, anorexia, anemia of varying degrees, apathy, loss of interest in usual activities; perhaps loss of weight, and, in general, a feeling of ill health. These symptoms appear quite readily in the young child, who usually is very busy with his enthusiastic activities and his school work and who suddenly or gradually develops the opposite attitude. In trying to evaluate properly such a situation, one should remember that it is not the bacteriological report on nose and throat cultures that decides the question. It is the history and clinical course of the patient. In my opinion, there is still a place for the clinician in the practice of medicine.

Much has been said about the relationship between infected lymphoid tissue and such conditions as rheumatic fever, chorea, nephritis, and nephrosis, but no proof has ever been advanced to support this contention. I do, however, believe, that patients with congenital heart disease may suffer severe complications by the presence of these sources of infection, and I have reference to the development of subacute bacterial endocarditis. There also are those instances in which infections of these structures may produce disturbances such as encountered in recurrent otitis media, sinusitis, and selected patients with infectious asthma, peritonsillar abscess, etc.

DANGERS OF AN OPERATION

How the pediatrician views the dangers or hazards associated with removal of the tonsils and adenoids should be considered from the psychological effect on the patient, as well as the operative procedure. Since this surgical procedure is an elective one and can be planned well in advance, there is no excuse for the element of surprise, as the child can be properly prepared for the event and so enter into it without undue fear or apprehension. The emotional trauma of years ago has been removed as physicians have improved their knowledge of the psychological effect of hospitalization on the child. Accompanying these improvements in the care of the patient, there have been advances in operative methods involving both anesthesia and surgical techniques; for example, having the patient in the head-down position during the operation has greatly reduced the hazard of aspiration of blood or fragments of tissue into the airway or lungs, thus minimizing these complications. The pre-operative and postoperative use of antibiotics and chemotherapeutic agents has likewise reduced the danger of blood stream infection and a competent physical examination prior to the operation has assured the family and the surgeon that all precautions have been taken. Thus, it would appear that under normal circumstances the dangers and hazards of this operative procedure have been reduced to a minimum when directed and performed by competent physicians.

I used "under normal circumstances"; these words were carefully and deliberately chosen, for I believe that circumstances do exist when such an elective operation is definitely not without hazard. As far back as 1910 Sheppard called attention to the possible relationship between the development of poliomyelitis of the bulbar type after tonsillectomy and adenoidectomy. Aycock and Luther in 1929 reaffirmed these observations by a study carried out in Massachusetts and Ver-

mont, and in 1938 sufficient evidence relative to this relationship was produced that it justified the withholding of this elective operative procedure in those areas where acute poliomyelitis was prevalent. Since that time many authoritative reports, both experimental and clinical, have appeared in the literature; yet there still exists a sizeable group of physicians who would try to convince others that such a relationship does not exist. I can only

state that, in my opinion and in spite of the cunningly prepared reports, I am convinced that this hazard is a real one and not one of fantasy or chance. In conclusion one may say that most pediatricians view the tonsil and adenoid question with respect, but they also view the general health of their patients with a greater respect and in selected instances and under proper circumstances advocate the removal of these lymphoid threats.

THE TONSIL AND ADENOID QUESTION AS SEEN BY THE OTOLOGIST

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With the change in otolaryngological practice, due to the advent of the antibiotics, it is an appropriate time to take a new look at the tonsil and adenoid problem from the otologist's viewpoint. This is particularly true in the light of the new emphasis on conservation of hearing that has come to the foreground in the past 10 years. In the past, tonsil and adenoid operations were often done without too much study and consideration of the need for their removal. The operation frequently was done rapidly and sometimes carelessly. Operatively, time was often given prime importance. Each tonsil was removed with a single manipulation of a guillotine, and the adenoids extracted with not much more than two or three swipes with a LaForce adenotome or an adenoid curet. I have seen the operation done in less than a minute. An operator with a good team of anesthetists and nurses could and did care for 10 or 12 patients in one hour. All this was not ideal, but it was reasonable when the main objective was the removal of tonsils and adenoids for the relief or prevention of such disorders as otitic infections, sinusitis, and lymphatic gland infections. Today, there is still the problem of otitic infections, sinusitis, and lymphatic gland infections, but more often now than previously, a loss of hearing is the reason for the removal of tonsils and adenoids. While it is true that tonsils, because of enlargement or severe infection, are an etiological factor in hearing loss, they are offenders in hearing impairment not nearly so frequently as the adenoid. I, therefore, would like to emphasize in the remainder of my remarks the importance of the adenoid in this regard and confine myself to this aspect of the tonsil and adenoid problem.

LOSS OF HEARING

In the Northeast, at least, the winter season is the dread of most otologists. This is the time of the year when the office is often filled with children who have inflammation or infection of their ears. When it is the former, it is almost always accompanied by the collection of some sterile fluid in the ear, that is, otitis media with effusion. This condition frequently is more difficult to treat and eradicate than infection, and neglect can result in partial, but permanent, loss of hearing. Too often children with inflammation and fluid in their ears do not come to the otologist. They remain in the office of the pediatrician, with the accompanying hearing loss undiagnosed or excused with the assumption that the child's lack of response to queries or commands is due to inattention and not to impairment of hearing.

Furthermore, the end-result of antibiotic treatment for an ear infection may be a sterilization of the infectious process with a residual otitis media with effusion. This is particularly true, in my experience, with penicillin therapy. The end-result in such an instance is the same as if there were no infection in the first place but only inflammation. With the subsidence of pain, temperature, and discharge (if such were present), the pediatrician is apt to consider the patient cured, although this is far from the truth. Fortunately, some pediatricians are sharply aware of this problem, but there are too many who do not concern themselves with moderate or slight hearing losses. The otologist can do nothing but sound this note of warning.

Not infrequently, a child who has had many abscesses in the ears instead of repeated minimal inflammatory attacks, will be brought to an otologist. Among the several causes for both these conditions, two stand out: infected lymphoid tissue in the nasopharynx and allergy. An unrecognized and undiagnosed allergic condition is often the reason why a child is subject to inflammation or infection in his ears. When, in addition to allergy, there is infected lymphoid tissue in the nasopharynx, the otologist is confronted with the problem of which of the two etiological factors is the more important. Should the adenoid tissue be removed and the allergy be neglected, or should allergic management be used with the hope that the infection will quiet and will not again bother the child's ears? In most instances, it will probably be wise to attend to both these etiological factors. Certainly, it would be unwise to pass over infected lymphoid tissue, for it is the most frequent cause of repeated trouble with the middle ear. On occasion, removal of a focus of infection will quiet an allergic mucosa, and it will not bother again unless it is prodded by another excitant.

If, then, the otologist is confronted with a patient who has some of these ear problems, it is his duty to advise a very thorough removal of the infected lymphoid tissue present. If infected tonsils are present, their removal should be included, but the careful removal of the nasopharyngeal disease is the more important. It does not matter what age the patient may be. I have removed adenoids from a child only 3 months old and have seen

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infected adenoids in persons who are in their sixties. The time factor is important. Removal should be undertaken as soon as the local condition in the nasopharynx warrants surgery. Waiting for summer is often unwarranted, for the public has become so poliomyelitis conscious that one cannot operate during the summer and early fall months. A cogent reason why operation should be instituted as soon as possible is that another episode may be just around the corner, and this episode may be the one that will really cripple the hearing in one or both ears. Each attack is potentially a serious one. Every attack probably lays the groundwork for some loss of hearing, but one never knows which attack may leave a striking aftermath.

ADENOIDECTOMY UNDER VISION

How does one perform a careful adenoidectomy? Certainly not with a few careless applications of an adenotome. A careful adenoidectomy should be completed, so far as possible, under vision. It is not possible to remove, under vision, the last remnants in the vault, but it is possible immediately thereafter to visualize the vault to ascertain if the last remnants have been removed.

It is immaterial how the main mass of adenoid tissue is removed. This can be accomplished with the use of an adenotome or a curet. The careful removal of the remaining islands is, in my opinion, very important. Here is where the use of visual control contributes much. A very important landmark that can be seen without difficulty, if the soft palate is elevated, is Passavant's ridge. This is the name given to the upper border of the superior constrictor muscle. It will be noted as a distinct pad of tissue above which one looks directly onto the nasopharyngeal fascia if the adenoids have been removed. Only occasionally does the lymphoid tissue of the adenoid extend downward over Passavant's ridge in its midportion. Very often, however, lymphoid tissue can be seen lying on the lateral aspects of this ridge. There is a continuous mass that arises in the region of the eustachian tube, passes over Passavant's ridge and continues to be present behind the posterior pillar on the lateral surface of the posterior wall of the pharynx. This is commonly called the lateral band. It frequently is infected along with the tissue in the vault of the nasopharynx and should be removed. Sometimes, when the band is very large, removal can be accomplished with the judicious use of a grasping tenaculum and tonsil snare; usually, it is best done with a biting forcep. I find the use of a triangular forceps with a basket attachment preferable to any other. The bitten pieces will not then be dropped in the pharynx with the subsequent risk of inhalation. When the tissue over the lateral aspect of Passavant's ridge is removed, care should be taken that muscle tissue is not removed as well. This care should be exercised in all of the manipulations in the region of the ridge. Care should also be taken in this part of the operation not to injure the mucous membrane on the posterior aspect of the posterior pillar. If this is kept in mind and carried out, one need never fear a stricture of the nasopharyngeal opening; if neglected, such scarring may ensue and its correction prove tedious.

Above Passavant's ridge, all visible lymphoid tissue should be removed. This cannot be done with an adenotome. I cannot do it with a curet. I find it necessary to

use the biting forceps. I continue to remove tissue until the nasopharyngeal fascia is clean. Once it is clean, it is easily recognized, and, in my opinion, an adenoidectomy has not been done unless a clean nasopharyngeal aponeurosis is the end-result. As one works superiorly toward the vault of the nasopharynx, the ability to see is lost, and the biting forceps must be used carefully and wisely in this location. Fortunately, unless one bites too far laterally where the top of the eustachian cushion may be injured, there are no structures to be avoided. It is surprising sometimes to see how much additional tissue can be removed from this location after careful use of the adenotome has been exercised. If judgment and skill are used, tissue posterior to the eustachian tube can be removed in this biting part of the operation. It should be mentioned that the eustachian cushion can be mistaken for lymphoid tissue, and this mistake should be avoided.

All of the operation needs proper vision. Various operators use different methods to accomplish this. It does not matter what method is used so long as vision is obtained. I prefer the Lothrop retractor, but I have used others when it has not been available. It should be noted that all soft palates are not alike, nor are all nasopharyngeal openings of like measure. Thus, some nasopharynges can be seen better than others; but the attempt should be made in all. It seems hardly necessary to add that all this condemns the swiping of the nasopharynx with a gauze-covered finger, a procedure still in common use. This manipulation is simple testimony to the laziness and carelessness of the operator who uses it.

If an adenoidectomy is performed before a child is three years old, it is more than likely that a secondary adenoidectomy will be necessary a few years later. Even an older child with excessive lymphoid tissue at the time of a primary operation may subsequently require a secondary adenoidectomy. If these conditions are present in children who have been operated by the examiner, it is reasonable and right to request the privilege of reoperation.

This naturally brings up the question of secondary adenoidectomies. These are more difficult than the original. If one practices the procedures outlined above, it is amazing how often one sees infected lymphoid tissue bound down by scar tissue. No curet and no adenotome will remove this. It must be cut away, and it can best be done, in my opinion, with a proper biting forceps. This must be continued till all lymphoid tissue is removed. A secondary adenoidectomy often takes longer to perform satisfactorily than the primary one.

One comforting thought to the operator who follows this technique is that he will have less postoperative bleeding from the nasopharynx. Most nasopharyngeal bleeding comes from incompletely removed lymphoid tissue. If one sees that the bleeding is stopped at the time of operation, on rare occasion will one have to stop a postoperative or secondary hemorrhage. This of course, does not include the tonsil area.

USE OF A RADIUM APPLICATOR

In any discussion of infected lymphoid tissue in the nasopharynx mention is usually made of the use of the radium applicator. It is mentioned here only to recommend the avoidance of its use. When its use became popu-

lar in the United States, I was overseas in military service. After I returned, I used a radium applicator for a period of about two years. Because I failed to obtain satisfactory results, I became convinced that its use for the elimination of infected lymphoid tissue in the nasopharynx is ineffective. Since I have paid more attention to a complete adenoidectomy, my surgical results (post-operative inspection of the nasopharynx), the decrease in the incidence of ear infections, and the improvement in hearing in these patients have been gratifying. I have seen numerous five-year follow-up audiograms of chil-

dren who have been treated with radium, and in the aggregate, the hearing at the conclusion of this period showed no improvement over the pretherapeutic hearing test. I have not used a radium applicator for more than five years. I realize that there are physicians who hold an opposite view. Despite the possible harmful effects in the after years with the increased dosage now advocated, they continue to advocate the use of radium. There is no purpose, however, to a controversy in the matter since a carefully performed adenoidectomy abolishes the need for the use of radium.

THE TONSIL AND ADENOID QUESTION AS SEEN BY THE LARYNGOLOGIST

Lawrence R. Boies, M.D., Minneapolis

I was prepared in my discussion to refer to the historical items that Dr. Badger has already mentioned, particularly the fact that there is evidence that tonsil surgery was done 1,000 years B. C.¹ As I read this account, it occurred to me that here we are, nearly 3,000 years later, discussing the tonsil as a problem. I wonder if there is any other subject in medicine with so long a history, about which there is controversy today. That it is still a problem is obvious if one examines current medical literature. In the "Quarterly Cumulative Index Medicus" one finds that in the 10 years, 1942 to 1951 inclusive, there have been listed an average of over 100 papers per year concerning the tonsils and adenoids.

That it was a problem before the days of modern surgical anesthesia and technique is not surprising. That it should be a problem today, except for the injection of the idea of the possible relationship of tonsil and adenoid surgery to the incidence of bulbar polio, is not so easily understood. It could be that the following two reasons suggest the responsibility for the controversial aspects of the tonsil and adenoid situation: 1. The indications for tonsil and adenoid surgery in the ordinary practice of medicine is determined through superficial observation. Compare it in a sense to the all-too-current practice today of the hasty prescription of antibiotics. 2. The regard for this surgery as a minor procedure seems to justify its attempted performance by many who have not acquired skill in working in this area. These also could be the reasons for the poor end-results from tonsil and adenoid surgery in terms of expected relief from the situation for which the surgery was advised, the inadequate removal, and the morbidity associated with the operation. With these possibilities in mind, I would like to consider the aspects of this matter that apparently contribute to controversy by asking these three questions: 1. What are the present-day indications for tonsil and adenoid surgery? 2. What constitutes an operation that is skillfully and thoroughly done? 3. What are the hazards to this surgery?

PRESENT-DAY INDICATIONS FOR SURGERY

Since I completed a residency at the Massachusetts Eye and Ear Infirmary 22 years ago, I have performed tonsil and adenoid surgery, or tonsil or adenoid surgery alone, on about 4,000 patients. A majority of these have

been in children. In relatively few instances has adenoidectomy alone been performed. Rarely has adenoidectomy been done on an adult. Practically all of the children on whom I have operated have been referred to me by pediatricians. I believe that the level of pediatric practice is on a high plane in the city in which I work. This judgment is based on my observation of the intellectual curiosity these pediatricians exhibit and the continued interest on the part of most of them in pediatric teaching and research. A majority of them would be classed as conservative; one or two might have radical ideas. Out of this experience, I am inclined to list the indications for tonsillectomy and adenoidectomy in three simple situations that are easily understood. I believe that the pediatricians with whom I work would agree with me. Two of these indications are well defined and probably are acceptable to most clinicians. These are repeated attacks of tonsillitis, and hypertrophy of the tonsil or adenoid to the extent of obstruction.

In children who have several attacks of tonsillitis, the tonsils tend to enlarge; yet it is not uncommon to find very large tonsils in spite of a negative history for tonsillitis. In adults who suffer recurrent attacks of tonsillitis, the tonsil may be of the small fibrous type, more or less continuously injected at the margins. When the palatine tonsil is hypertrophied to the extent of obstruction, it is usually very large. There is a nasal quality to the voice; mouth breathing is the rule; the child's appetite is poor; and usually there is a history of a tendency toward frequent upper respiratory tract infection, often in the form of tonsillitis. In some instances this same picture is the result mostly of adenoid hypertrophy alone and the tonsil is relatively small.

The third situation is not so clearly defined as the two indications just discussed. When there is continued evidence in a particular case that the tonsil harbors chronic infection as manifest by a purulent expression or excessive formation of caseous material, tonsillectomy should

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1. Mollison, W. W.: The Work of Samuel Sharp and His Predecessors on the Functions and Surgery of the Tonsils, *Guy's Hosp. Rep.* 78: 93-103 (Jan.) 1928.

be considered. Then there is the concept of focal infection that has apparently undergone considerable clarification in recent years.² Extremes of thinking concerning this concept are not uncommon, but it is probably safe to say that a majority of the medical profession who treat diseases in which infection plays a role have a sane attitude toward this concept. This majority seem to reason that, when a disease in which infection may play a role exists and when evidence of persistent or recurrent infection is present in the tonsils, the surgical removal of this possible source of infection is logical if the infection cannot be promptly eradicated with modern drug therapy.

A SKILLFUL AND THOROUGH OPERATION

I stated earlier in this discussion that the regard for this surgery as a minor procedure seems to justify its attempted performance by many who have not acquired skill in working in this area. This performance on the part of the unskilled accounts for the fact that at least one in four tonsillectomies is not well done and one in two adenoidectomies is poorly performed. These errors in a more or less standardized technique are not so much the lack of knowledge of what should be done as a poor technique in doing it. It has been my observation that two circumstances contribute materially to these errors. One is that the operation is performed hurriedly, and the other is that there is a lack of clear illumination and visualization of the entire tonsillar fossa and of the nasopharynx.

A hurried technique often means inadequate hemostasis, and this in itself contributes to poor visualization. There seems to be a confidence on the part of some surgeons that bleeding vessels in a tonsillar fossa will contract, which confidence would be lacking with the same-sized vessel and degree of bleeding in an abdominal operation. Clear visualization of what is being done demands good hemostasis and good illumination. In many instances this illumination will only be obtained from a headlight or reflected light. The surgeon who depends on the overhead light of the operating room may find himself severely handicapped. This can contribute to a poorly performed operation.

The most hurried part of the operation has always been the adenoidectomy. I stated earlier that one-half of the adenoidectomies are poorly performed. The reason for this is that this surgery is done in an area that is difficult to expose. I was taught in my general internship to scoop out a central mass of adenoid, check the result with an examining index finger and let it go at that. When these maneuvers were completed, the patient was hurriedly turned over on his side or face with the head low, so that he could bleed into a basin and not aspirate blood into his trachea. Since then, I have learned that it takes time and patience to perform an adenoidectomy well—it often requires 15 to 20 minutes or more—and that the technique requires a systematic procedure of planned scoops with an adenotome or strokes with a curet, then sponge pressure for hemostasis, then exposure of the site for visualization, and often the removal of more adenoid

tissue. Good hemostasis may require the application of hemostats and sometimes even sutures. A good adenoidectomy may require the use of special biting forceps, such as those designed by Meltzer, to remove hypertrophied masses of lymphoid tissue from the lateral pharyngeal wall and adjacent to the eustachian orifices. I subscribe to all that Dr. Hoople has said about the details of technique in removing lymphoid tissue from the nasopharynx.

THE BEST TECHNIQUE

The object of the operation is, of course, to accomplish a complete removal of the tonsils and adenoids with a minimum amount of trauma and adequate (which means complete) hemostasis. Whatever method accomplishes this for a particular surgeon must be considered to be the best technique. There was an era in which the so-called Sluder technique was popular. The original technique, I believe, called for deep nitrous oxide anesthesia, a rapid guillotining of the tonsils, and an equally rapid scooping out of adenoid tissue. The elapsed time for the surgeon's actual operative maneuvers approximated a minute in the demonstrations that I have seen.

I prefer a guillotine with a medium dull blade for the removal of the soft tonsils of young children. It has the advantages of leaving a smooth fossa and produces the minimum amount of trauma; however, its use does not shorten the time of operation when good hemostasis is obtained after the removal of each tonsil. There also may be the matter of removing a prominent plica triangularis, which may have to be done with scissors or snare or both, with additional attention to hemostasis. Sometimes, too, a remnant of actual tonsil is left because the guillotine cuts across a prominent nodule or misses an adherent portion of the tonsil at the upper pole or at the base. These may be overlooked with the "super-speed" technique.³ It is certain that adenoidectomy cannot be adequately done in many instances when there is speed and no careful inspection after hemostasis.

HAZARDS OF OPERATION

I once knew a pediatrician who stood far to the left in his antipathy toward tonsil and adenoid surgery. When a mother asked about the possible need for this surgery in her own child, this pediatrician could effectively halt her inquiry by saying, "Mother, do you know how many children died in this country last year from tonsil operations?" I might further qualify this particular pediatrician's judgment by adding the information that he administered cold vaccine to most of his patients who were subject to upper respiratory tract infections.

There has been mortality from tonsil surgery. Dr. Badger has already emphasized that. Occasionally I hear of such a tragedy in my community or in the state. In some instances it is due to the anesthesia, in others to hemorrhage. I have often heard the nurse anesthetist remark that the most difficult anesthetic to give and manage well has been the one for tonsil and adenoid surgery.

The advent of intratracheal anesthesia and the technique that has developed for this have, I know, eased my concern over the anesthetic in that there have been eliminated any periods of embarrassed respiration and anoxia, and the control of secretion or any blood in the trachea is made very easy and certain.

2. Coleman, G. H.: Present Status of the Concept of Focal Infection, *J. A. M. A.* 151: 280-285 (Jan. 24) 1953.

3. Boies, L. R.: Tonsillectomy in the United States, *Ann. Otol. Rhin. & Laryng.* 57: 352-363 (June) 1948.

The two objections to this method of administering the anesthetic have been the possibility of trauma to the vocal cords and the fact that the presence of the tube produces an obstacle to work around. We have found that selection of a tube of the proper size—one that does not fit tightly into the glottic space, and one that is made of an inert material, plus its introduction without trauma—eliminates any laryngeal reaction. There are adapters for its connection that allow a positioning of the tube to one side or other of the mouth so that it is practically out of the way (fig. 1 and 2).

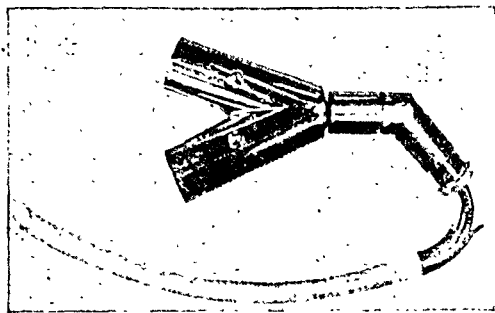


Fig. 1.—Popular form of intratracheal tube with adapter connections.

With these advantages, control of the anesthetic should never be a problem. The nurse anesthetist experiences little difficulty in learning the management of the anesthetic through a tube. Dr. Ralph Knight, president of the American Society of Anaesthesiologists, has often made the statement that a surgeon who cannot insert an intratracheal tube should not be doing tonsil surgery.

Hemorrhage from tonsillectomy or adenoidectomy occurring within the first day of operation is more often the result of inadequate hemostasis at the time of surgery than any unusual situation related to the patient, or the condition of his tonsils and adenoids. Often, inadequate hemostasis means carelessness, speed, or lack of skill and experience. Slight bleeding about a week following the surgery is not uncommon, in my experience, and in most instances needs no special treatment. It is said to be the result of the separation of the membrane which normally coats the fossae, or in the nasopharynx to localized infection, or the separation of sutures.

In recent years a new hazard has been publicized—the vulnerability to poliomyelitis. Much has been written about this, some of which is controversial. It is not within the purpose of this discussion to consider the pros and cons of this controversy. It has been my contention that tonsil and adenoid surgery should be avoided in the presence of an epidemic of any disease. In recent months a new angle to this relationship has been stated to the effect that anyone of any age is more vulnerable to poliomyelitis and particularly to bulbar form if his tonsils and adenoids are missing.⁴ This is said to be true even though the tonsils and adenoids had been removed several years previously.

The first two hazards can be overcome by obvious means. The third, if time proves it to be one, will pass when poliomyelitis is controlled. Until then the indications for tonsil and adenoid surgery will undoubtedly receive the more thoughtful consideration that is justified and the

clinician will weigh the advantages in the total health picture against what hazards are faced when the operation is skillfully done with the full advantages of modern anesthesia. I suspect that since there seem to have been some advantages to the surgical treatment of tonsils for approximately 3,000 years, these advantages will continue in properly selected cases until all of the problems of upper respiratory tract infection and their sequelae are eliminated.

SUMMARY AND CONCLUSIONS

Surgery of the tonsil, discussed for nearly 3,000 years, is still controversial, probably first because the indications for its surgical treatment are often based on superficial observation and secondly because there is a morbidity and even mortality associated with it, because it is attempted by many who have not acquired skill through training and experience in working in this area. Tonsillectomy and adenoidectomy is justified in cases of repeated attacks of tonsillitis or adenoid infection, hypertrophy to the extent of obstruction, and when there is evidence of persistent chronic tonsillar or adenoid infection. A clean tonsillar fossa with the minimum of trauma to the pillars and muscular bed and thorough hemostasis are the marks of a skillful, carefully performed tonsillectomy. A thoroughly performed adenoidectomy requires good exposure of the nasopharynx, time, hemostasis, and visualization of the end-result. The hazard of hemorrhage is minimal if care and thoroughness are used. The anesthetic risks of periods of anoxia, uncontrolled aspiration of secretions into the lung, and other anesthetic hazards are practically eliminated with the best modern intratracheal method. The hazard of increased susceptibility

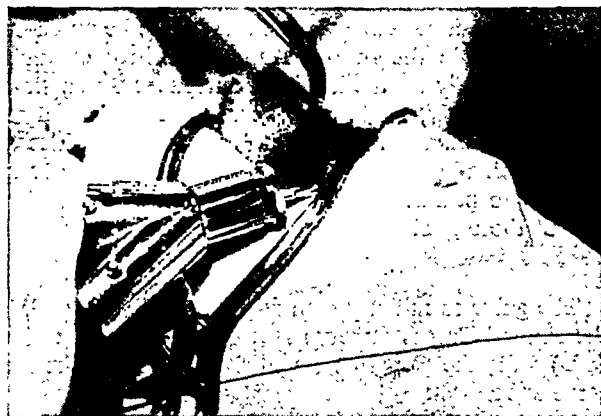


Fig. 2.—Intratracheal tube connected with anesthesia source. Because this connection is mobile and can be placed in either angle of the mouth, there is little interference from the tube in the area in which the surgeon works.

to bulbar poliomyelitis and of the greater possibility of death if the disease is contracted “call for sober judgment with regard to the desirability of tonsil removal except for excellent clinical indications. The nonremoval of tonsils may be as hazardous to a person or more so than their removal, for the chance of contracting poliomyelitis in a clinically recognizable form is not great.”⁴

90 S. 9th St. (2).

4. Top, F. H.: Occurrence of Poliomyelitis in Relation to Tonsillectomies at Various Intervals, *J. A. M. A.* 150: 534-539 (Oct. 11) 1952.

THE PHYSICIAN'S STAKE IN THE ARMY RESERVE PROGRAM

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The defense of the United States is ultimately the responsibility of its citizens. Today sound war plans that can be quickly and skilfully executed are musts for success in modern conflict. In a republic, however, the attitudes of the people determine the strength or the effectiveness of the national preparations. Physicians have a large stake in these efforts. To achieve reasonable degrees of medical preparedness the mutually interdependent interests and the roles of the Army Medical Service and the health professions must be fully utilized. It is, therefore, timely and the objective of this essay, within limitations of security, to acquaint the medical body politic with the Army Medical Service plans that specifically deal with the reserve program and to suggest how the organized profession and the individual physician can assist in this important business. There must be neither intellectual nor physical blocks to prevent the fullest support of the Army Medical Service Reserve.

Facts without sugar coating, such as those contained in the recent paper by Moseley,¹ are illuminating. He has given a practical review of the current military medical effort, discussed the theoretical considerations of the "one military medical service" concept, pointing out its fallacy, has outlined in some detail the military requirements for physicians, and has commented on their varied employments. The readers of this paper will feel easier about professional utilizations should there be an all-out mobilization in the future. Another positive comment bearing directly on the thesis of our paper was a statement in the July, 1953, message of the President of the American Medical Association² on responsibilities of the physician in military medical matters. He invited suggestions to permit the effective fulfilling of the obligation of the organized profession.

MISSION

The guide to military planning is the mission, and, in the Armed Forces Reserve Act of 1952,³ public law (PL) 476, the Congress stated the mission of the Reserve as follows:

Section 201a.—The Congress hereby declares that the reserve components of the Armed Forces are maintained for the purpose of providing trained units and qualified individuals to be available for active duty in the Armed Forces of the United States in time of War or National Emergency, or at such other time as the National Security may require, to meet requirements of the Armed Forces of the United States in excess of those of the Regular components thereof, during and after the period needed for the procurement and training of additional trained units and qualified individuals to achieve the planned mobilization.

Surgeon General (Major General Armstrong) and Special Assistant to the Surgeon General for Reserve Forces (Colonel Mason).

1. Moseley, H. G.: *Medicine and the Current Military Effort*, U. S. Armed Forces M. J. 4: 1107-1118 (Aug.) 1953.

2. McCormick, E. J.: *The President's Page*, J. A. M. A. 152: 1239 (July 25) 1953.

3. Public Law 476, 82nd Congress, The Armed Forces Reserve Act of 1952, effective Jan. 1, 1953.

Detailed plans for the employment of the Reserve Forces of the Army (the National Guard of the United States and the Army Reserve) have stemmed from this statement of mission.

PERSONNEL

Public law 476 also contains sound organizational and administrative directives that provide for the orderly operation of the reserve system in peacetime, furnish guidance for the correction of most deficiencies of earlier programs, and enhance the mobilization potential of this civilian element. To be effective, this Medical Reserve Force program requires active men in substantial numbers that it currently does not have. On examination, the means for procuring officers and enlisted men consist of a combination of voluntary and legal devices. This latter was authorized in public law 51, 82nd Congress. "The Universal Military Service Act," and requires that all enlisted men and those physicians, dentists, veterinarians, and certain other specialist personnel, who, subsequent to June 19, 1951, were less than 26 years of age on entering service and who have served two years on active duty, are obligated for six years' reserve service. Enlisted persons with an obligation now total several hundred thousand, and, although there is but a handful of officers presently, their numbers will increase as time passes. The obligatory procurement feature is weak because the law contains no real means of enforcement. The failure of the vast majority of this group of young men to recognize their reserve obligation or to participate in an active capacity constitutes a threat to national security and an avoidance of personal responsibility that is frightening. Affirmative action by highest authority is long overdue, and forthright measures must be employed if the reserve, as presently constituted, is to be saved.

The largely voluntary officer corps has suffered severe losses in the past five years because of retirements for age and physical deficiency and resignations prompted by press of business. The procurement of medical and dental corps reserve officers by voluntary means for inactive duty service has further lost ground since 1950, because the "Doctor Draft" act has utilized nearly 100% of the earlier source of officer recruits. After return from service, most of these men refuse to have any part of a military program, save in an all-out emergency. Unfortunately serious additional losses have resulted from failure to accept the indefinite term commission provided in the Armed Forces Reserve Act by many morally obligated to serve. Perhaps these losses can be attributed to poor motivation, fear of recall, and selfishness or apathy. The Army is to blame for other defections because of unfortunate promotion programs, some bad personnel policies rigidly enforced, and unrealistic training. These and the unfortunate frequent fluctuations of the troop basis during 1950 and 1951, causing the inactivation of units, have caused additional defections. The

events just cited are products of the "cold war" and reflect the instability of earlier higher level policies. Correction is at hand, however, because the reserve of all arms and services has now been reduced to a "hard core" that generally has a high morale and is deadly serious about its job. In general, with the application of valid policies and with but little supplementation of personnel and encouragement, the units and persons now on hand could quickly provide the basis for an effective force.

The Department of the Army has, through the application of realistic regulations and programs during 1952-1953, corrected most of the personnel and organizational defects already mentioned. For example, promotion boards were convened in all parts of the country during the summer of 1953 to consider officers on active duty, as well as those not in active service, for reserve advancement under public law 476. The troop program has been made firmer to eliminate the morale-shattering fluctuations. Training, while still in need of recurrent reexamination for validity, is improving month by month.

TRAINING

The training programs since the end of World War II, particularly those for the professional specialists, have been a source of great discontent to those who participated; hence the correction of this inadequacy deserves a little extra comment. The Surgeon General's approach to the modification of professional training programs was fully supported by the studies of two Department of Defense committees that conducted surveys of medical reserve matters. The Middleton Task Force,⁴ a civilian body that met during late 1949 and early 1950, surveyed armed forces medical reserve programs and submitted recommendations that assisted the Army greatly in the redirection of its over-all activities. A second committee, consisting of civilian and military members,⁵ was convened at Department of Defense level in the spring of 1952 to assess the training programs of the medical reserves of the armed forces. The findings and recommendations of this committee resulted in Department of Defense Directive 1215.4 on Nov. 26, 1952, to the secretaries of the Army, Navy, and Air Force. The grouping of medical service reserve career areas into command and staff on the one hand and professional on the other was recognized and affirmed thus giving support to an earlier view taken by one of us (J. B. M.)⁶ postulating the development of reserve career patterns and their use as a basis for the preparation of reserve training programs. In conformity with this concept, the directive required the incorporation of appropriately designed courses for professional specialists to supplement the otherwise generally adequate reserve instruction in each medical service. The responsibilities of the Surgeons General and their opposite numbers, at lower echelons of command, for planning and supervision were greatly enhanced by this directive.

The spirit and letter of the directive have been compiled within the Army by the development of a course of instructions to be known as "Military Medicine, phase 1," which becomes operative this fall. The program was conceived in the Surgeon General's office, while the details of the schedule, the assembling of supportive text ma-

terial, together with the preparation of a guide to insure a maximum degree of local program planning was accomplished under the direction of the Commandant, Army Medical Service Graduate School. The Commanding General, Army Field Forces, approved the program early in August and directed distribution to medical reserve units and to medical branches of U. S. Army Reserve schools. These latter elements are vehicles for the instruction of reservists who are not members of units. The topics included in the master schedule are shown in the table. Phase 2 of the course in military medicine and material for other corps will be issued later. The phase 2 program will be designed to acquaint professional personnel in medical staff and command matters in major medical headquarters and in duties of consultants and chiefs of section or service in military hospitals. The professional programs, such as have been cited, should breathe life into a most important segment

Master Subject Schedule

Annex No.	Title of Subject	Hours
1	Some General Aspects of Military Medicine.....	16
2	Milestones in Military Medicine.....	5
3	Medical Aspects of Selection, Assignment, and Utilization of Manpower in the Military.....	19
4	Neuropsychiatry.....	12
5	Stress and Strain.....	10
6	General Medicine.....	35
7	Environmental Diseases and Injuries.....	9
8	Preventive Medicine and Epidemiology.....	5
9	Enteric Diseases.....	10
10	Parasitic Diseases.....	12
11	Virus, Rickettsial, Bacterial, and Respiratory Diseases.....	15
12	Leptospirosis.....	3
13	Early Management of Battle Casualties.....	10
14	Local Complication of Wounds.....	9
15	Specific Consideration of Regional Surgery—Neurosurgery.....	9
16	Maxillofacial Surgery.....	2
17	Thoracic Surgery.....	8
18	Abdominal Surgery.....	10
19	Genitourinary.....	2
20	Orthopedic.....	10
21	Peripheral Vascular.....	9
22	Thermal Injury.....	15
23	Wound Shock.....	18
	Total hours.....	247

of the program, reawaken interest in those who have become inactive, and attract officer recruits. It is to be remembered that, in a mobilization, medical corps officer requirements for staff, command, and logistics are in the order of one to four with needs for professional personnel.

TROOP UNITS

It is pertinent to consider the troop units that are the strong right arm of any military program. The medical reserve troop program has been developed, as a portion of the Army Medical Service Mobilization Plan, to mesh

4. The Middleton Committee consisted of W. S. Middleton, M.D., chairman; W. McK. Craig, M.D.; J. Randolph Lovelace, M.D.; C. Raymond Wells, D.D.S.; and James B. Mason, M.D.

5. Committee on Medical Reserve Training, Reserve Force Policy Board, Office, Secretary of Defense, was authorized in March, 1952. The membership consisted of chairmen, (first) Brig. Gen. A. H. Schwichtenberg, (MC), U.S.A.F.; (second) Brig. Gen. J. O. Gillespie (MC), U.S.A., and (third) Brig. Gen. A. R. Gorby (MC), U.S.A.; members, Col. J. B. Mason (MC), Army of the United States; Capt. M. H. Porterfield (MC), U.S.N.R.; Col. A. L. Streeter (MC), U.S.A.F.; F. B. Berry, M.D., New York; and G. O. Broun, M.D., St. Louis; and a recorder without vote.

6. Mason, J. B.: Career Patterns for the Medical Reservist, Mil. Surgeon 108: 369-372 (May) 1951.

smoothly and in appropriate priorities with the troop list of the active Army in the event of mobilization. In like fashion the reserve troop list and priorities would be followed by the units required after both active Army and Reserve Force units have been called up. This latter force is termed the Army of the United States (A. U. S.) phase and will be cited below in connection with one-time affiliated units.

The troop list contains in appropriate numbers the various headquarters units (hospital center, group, and battalion headquarters), hospitals (1,000-bed general, station, evacuation, field, mobile surgical, and convalescent centers), and other combat and service support units. Over 80% of the troop units have been organized, although in far too many instances units are woefully short of personnel due to lack of local support. In 1952, the Army Medical Service in conjunction with the National Guard Bureau inaugurated a pilot program to ascertain the feasibility of organizing close division support hospitals (evacuation and surgical hospitals, mobile army) in the National Guard of the United States. Preliminary reports indicate substantial interest by the National Guard. If expanded, the program would benefit the states, furnish additional strong units for the medical troop list, and provide added career features for medical officers in the National Guard. All physicians should be fully aware of the even greater need for their support of the organic medical units of National Guard and Army Reserve divisions.

General hospitals affiliated with medical schools or large civilian hospitals provided very substantial support for the Army hospital programs in World War I and II. Although invited to reestablish units in the reserve at the end of World War II, very few of these institutions would participate because of the large amount of administration and time required for training by staff members. In 1952, the Army developed a fresh approach to the problem, inviting the institutions to furnish only key professional staff for general hospitals to be employed in case of war, in the Army of the United States phase. Where appropriate the old world war number would be again assigned. This plan did not require the development of an organization, the conducting of training programs, or the appointment of reserve officers. Currently, a high percentage of former sponsors have accepted thus making substantial contributions to long-range medical plans.

COMMENT

The historic position of the United States citizen is, in the main, one of abhorrence to service in the armed forces in peacetime. The rise of this country to leadership in the world community and the aggressive spirit of our enemy, who probably possesses both fission and fusion nuclear weapons, have added additional and grave responsibilities for its citizens. The security of the United States and the free world requires that the time-honored stand in military matters be reexamined in the light of this new status. Since the very beginnings of the nation, the active Army has formulated plans, and their execution in time of war has been largely accomplished by the civilian elements. Never again can this country afford the luxury of completing major plans after a war has started,

because there is no friendly nation strong enough to serve as a shield while the United States mobilizes. The catastrophe of a lost war would surely eliminate the American way of life! It is prudent, therefore, for the medical body politic to take a hard, realistic look at its peacetime responsibilities in long-range security planning. This long-range planning, as related to Reserve Forces, indicates completed positive action in several areas.

First, the Congress has provided a strong legal framework on which to erect a reserve edifice, if the lamentable picture with respect to active participation by those with a reserve obligation is excluded. Second, the Department of Defense and the Department of the Army, as pertinent, have developed valid Reserve Force programs and have issued workable policies and regulations. Third, the Army Medical Service through positive leadership has put realism into its reserve program. In addition, the more effective operation of the medical service by the wise inclusion of lessons of World War II and the Korean War into policy, regulatory and operational features of war plans have been assured.

CONCLUSIONS

It seems eminently clear from what has been set forth, that the Medical Reserve program has been well conceived and that provisions for its conversion into an effective military agency could be assured, provided solid support is forthcoming from the medical profession.

There are three areas in which organized medicine and the physician can be of great assistance. First, it must be recognized that the current world unrest will probably last for a long time and that a strong Army Medical Reserve Force is a must for the foreseeable future; this will mean hard work and sacrifice by all physicians. Under the Armed Forces Reserve Act, physicians with previous military service have wide choice in determining the degree of activity in which they wish to participate.

Second, physicians, as citizens, have a responsibility for national defense as it relates to Medical Reserve Forces. Physicians should support the country's defense by explaining the security needs of the nation to their patients and others in day-to-day conversations. In addition, within their own professional circle, they must by word and deed assist in creating an atmosphere of confidence in medical defense matters among the younger physicians.

Third, there must be greater physical participation by physicians in every unit requiring Medical Corps officers. The time devoted to this security effort should be put at the top of the list of extracurricular activities by every physician 45 years of age or younger. The requirement for personnel in local medical units can be readily secured from unit commanders by the military affairs committees of the county medical societies. This committee with the backing of the total membership should assist unit commanders in the procurement not only of medical officers but of other officers, nurses, dentists, veterinarians, and Medical Service Corps and enlisted men. Medical branches of Army Reserve schools, as well as reserves of one or both sister services—Navy or Air Force—need this vital push to bring the unwilling and the apathetic to do their duty. The alternative to serving and a willing

support of the Reserve Forces program by the medical profession can only mean the eventual withering to ineffectiveness of this civilian component.

There will surely be some who disagree violently and who will write seething letters of protest. This is healthy and a right of free Americans, but it is well for these persons to remember that the hazard of losing cherished rights and advantages has never been greater since Revolutionary days. Resolute and collective support for the medical reserve program from the grass roots is a must and it must come now! The Army Medical Service has done and will continue to do its part. It's your Army! It's your country!

CLINICAL NOTES

MULTIPLE EPISODES OF CARDIAC ARREST

REPORT OF A CASE

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Truman G. Schnabel Jr., M.D.

and

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Successful restoration of cardiac function on four separate occasions in a single patient over a 10 day period following long periods of circulatory cessation seemed sufficiently unusual to warrant reporting. Of additional interest is the fact that at least two of these episodes were associated with ventricular fibrillation, and all attempts to prevent their recurrence were unsuccessful.

REPORT OF A CASE

A 68-year-old housewife was admitted to the hospital of the University of Pennsylvania on Oct. 22, 1952, for closure of a transverse loop colostomy. In June, 1952, an operation performed elsewhere for diverticulitis had resulted in the formation of multiple pelvic abscesses. At the time of operation, it was necessary to remove approximately three-fourths of her small intestine and to perform a transverse loop colostomy. Subsequently diarrhea developed, with 5 to 10 stools a day, and her weight fell from 130 to 100 lb. (59 to 45.4 kg.). The transit time from mouth to colostomy was 30 minutes. A high caloric diet and blood transfusions were only slightly beneficial to her general condition, and it was felt that closure of the colostomy would decrease diarrhea and alleviate her problem considerably.

Her history revealed that at the age of 8 she had had chorea and as a child had many sore throats. In 1938 she had been treated with rest and digitalis because of "nerves." At the time of admission she stated she had some precordial pain on exertion and mild ankle edema after prolonged periods of standing.

Physical examination revealed her to be a cheerful but emaciated woman in no acute distress. Her blood pressure was 140/84 mm. Hg and her pulse 96; her temperature and respirations were normal. Her skin was loose and dry. An arcus senilis was present bilaterally, and fundoscopic examination showed arteriolar narrowing of the retinal vessels. Cardiac examination revealed the apex beat to be in the fifth interspace, 8 cm. from the midline. There was a soft apical systolic

murmur and a split mitral first sound. The rhythm was regular, with an occasional extra systole. There was no venous distention. The chest was clear. A colostomy was present in the right upper quadrant. Rectal examination revealed some firmness in the cul-de-sac.

Laboratory studies revealed a hemoglobin level of 55% and a leukocyte count of 5,500. Her serum protein level was 5.9 gm. per 100 cc., and urinalysis revealed no abnormalities except for the presence of 8 to 10 leukocytes and 1 to 3 casts per high power field (necatheterized specimen).

After transfusion of 1,500 cc. of whole blood, her hemoglobin level rose to 83%. Preoperatively a thin membrane that had re-formed between the limbs of the colostomy was broken down again. On Oct. 31, 1952, an intraperitoneal closure of her colostomy was accomplished under spinal anesthesia. The procedure was tolerated well, and she returned to her room in good condition.

Postoperatively she seemed to do satisfactorily but, because of nausea, suction drainage was continued for two days. On the day after operation chemical studies revealed a serum chloride level of 80 mEq. per liter and a carbon dioxide content of 32 mM. During the next 36 hours, she was given 3,500 cc. of saline solution intravenously and by Nov. 2, 1952 (her second postoperative day), she felt considerably stronger. On Nov. 3, 1952, she started passing gas from the rectum. Chemical studies on that day revealed a serum chloride level of 92 mEq., carbon dioxide 34.2 mM., sodium 144 mEq., and potassium 2.7 mEq.

First Cardiac Arrest.—On the morning of Nov. 4 her status seemed good and oral administration of fluids was started. Her temperature and respiration were normal, and her pulse was 84. While sitting in bed talking, she suddenly began to have a convulsion. The convulsion was generalized, and upon its cessation she was apneic and pulseless. When seen four minutes later by an intern, she appeared moribund. He struck a sharp blow on the precordium, with a resultant immediate resumption of respiration and return of her pulse. Administration of oxygen was started, and within several minutes her blood pressure was 100/50 mm. Hg and her pulse and respirations were regular, but she remained unconscious. Fifteen minutes later, her pulse became grossly irregular, her blood pressure fell to 50/30, and Cheyne-Stokes respiration developed. Then 45 mg. of ephedrine were given intravenously, and her blood pressure rose to 90/50. An electrocardiogram taken at this time (see figure) showed auricular fibrillation and ST segment depression in all chest leads. It was interpreted as being indicative of diffuse myocardial ischemia and anoxia. These changes, it was thought, might be due to myocardial infarction, pulmonary embolism, or merely severe anoxia.

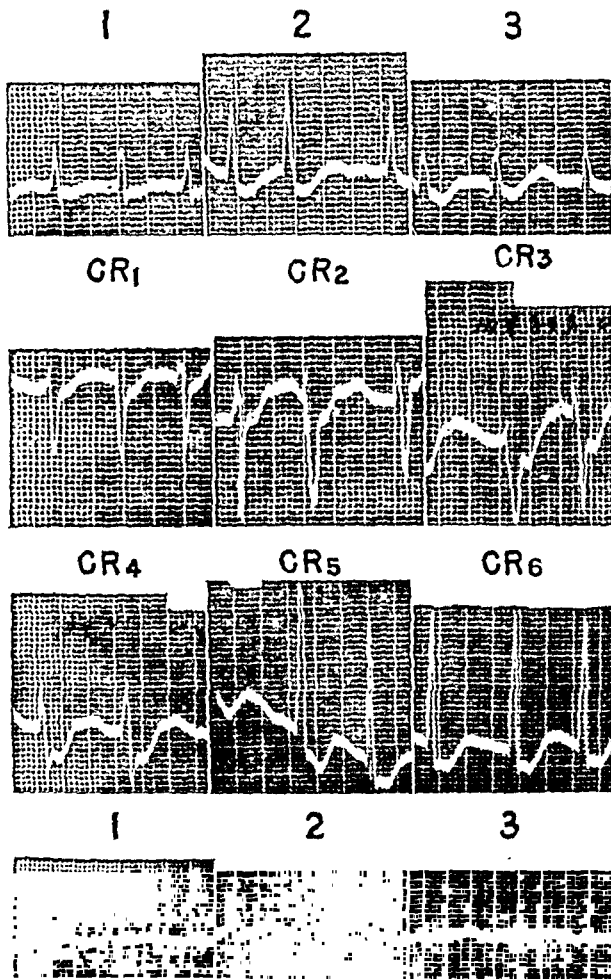
Two hours following the convulsion, spontaneous motion was first noted in her extremities. Four hours following the seizure, her blood pressure had risen to 178/90 and then gradually returned to her normal level of 130/70, with a regular but rapid pulse. Twelve hours after the episode, she was talking but seemed confused. During this 12 hour period, she was given 1,000 cc. of 0.6% potassium chloride, with 0.425% sodium chloride and 1,500 cc. of 5% dextrose in water. Heparin was given because it was thought that she had had a coronary occlusion or pulmonary embolus.

On the following morning, Nov. 5, 1952, she showed further improvement and could answer most questions. Her pulse was regular at 80, and her blood pressure 140/60. She had no chest pains. An electrocardiogram showed less depression of the ST segments and was interpreted as showing evidence of recovery from diffuse myocardial anoxia. Oral feedings were again instituted. Her condition seemed good during the next few days, but her memory for recent events was somewhat clouded.

Second Cardiac Arrest.—On the morning of Nov. 9 (five days after her initial cardiac episode) the second attack occurred while she was drinking a glass of milk. She suddenly became rigid, and again her pulse was unobtainable and her respirations ceased. This time a blow on the chest by her nurse was ineffectual, so administration of artificial respiration and oxygen by inhalation was started immediately. Five minutes later an intern reached the bedside and struck the chest with his fist, and again her pulse and respiration were restored.

After resumption of cardiac activity, the patient was hypotensive. Arterenal intravenously was therefore utilized to maintain a relatively normal blood pressure. An electrocardiogram taken soon after this episode showed some ST segment depression and T-wave changes that were little different from the electrocardiogram taken four days previously. Auricular fibrillation was present. The possibility of the electrocardiographic changes being due to electrolyte imbalance was raised at this time.

After this attack she was unconscious for four hours. When consciousness was regained, the blood pressure was 100/60 and the pulse was again regular. On the following day, Nov. 10, 1952, she was mentally alert. Her pulse was regular, with an occasional extrasystole. There were no signs of cardiac failure. Oral feedings were instituted and were associated with five



Electrocardiographic tracings of woman who had multiple episodes of cardiac arrest. The upper nine leads were taken one hour after the initial attack. The generalized ST depression and the prolonged QT interval can be seen. The serum potassium level at this time was 2.5 mg. per 100 cc. The lower three leads were taken 24 hours after the fourth attack. The QT interval is still prolonged, but the ST depression has disappeared. The serum potassium level was 4.7 mg. per 100 cc. (The electrocardiogram was retouched for reproduction.)

loose stools during the day. Chemical studies showed a serum chloride level of 91 mEq., sodium level of 138 mEq., carbon dioxide content of 40.5 mM., and potassium level of 2.5 mEq. Because of the diarrhea and low serum potassium, she was given 1,000 cc. of 0.6% potassium chloride with 0.425% sodium chloride intravenously. Administration of heparin was continued.

Third Cardiac Arrest.—On the morning of Nov. 12 her third episode of cardiac dysfunction and respiratory arrest occurred. Despite several blows on the chest that resulted in one or two heart beats, she remained otherwise pulseless and apneic for approximately 10 minutes. Nasal administration of oxygen,

however, had been started immediately, and during the latter half of this period mouth-to-mouth respiration was employed. The chest was then opened through the fourth left interspace and cardiac massage started. The heart was found to be in ventricular fibrillation. While cardiac massage was carried out and oxygen administered by mask and bellows, she was taken to the operating room. There 1,000 cc. of blood were given intravenously under pressure, and after manual massage had been carried out for at least 25 minutes and following the second series of electric shocks with a defibrillator, an effective rhythm was restored. The chest was then closed. She responded surprisingly rapidly, and by early afternoon was awake and recognized other persons. Her blood pressure was then 120/70, and her cardiac rhythm regular. Chemical studies done immediately after this last episode showed her serum chloride level to be 90 mEq., carbon dioxide 30 mM., sodium level 141 mEq., potassium level 2.4 mEq., and calcium level 7.8 mg. A dose of 500 mg. of procaine amide (Pronestyl) hydrochloride every fourth hour was given intramuscularly but was discontinued at midnight because of a falling blood pressure. During the evening, her blood pressure dropped to 80/55 and remained low for the remainder of the night. During the night she received a liter of 0.6% potassium solution and 10 cc. of 10% calcium gluconate intravenously. This was repeated the following morning.

Fourth Cardiac Arrest.—On Nov. 13, despite hypotension, 400 mg. of procaine amide every fourth hour was again given intramuscularly because of the development of premature beats of ventricular origin. In addition, 4 cc. of arterenal were given in an intravenous drip rapidly enough to maintain her systolic pressure at 100 mm. Hg. Four hours after the last dose of procaine amide and two hours after administration of arterenal was started, her fourth episode of cardiac arrest occurred. Her chest was opened three minutes following the onset of the attack, and her heart was again found to be in ventricular fibrillation. One minute after institution of cardiac massage and without the use of drugs or electrical defibrillation, her heart began to beat effectively. While cardiac massage was being carried out, she actually regained consciousness. She was again taken to the operating room, and her chest then was closed after induction of anesthesia with cyclopropane and ether. During the operative procedure 500 mg. of procaine amide were given intravenously to control the numerous ventricular extrasystoles. One hour later another 400 mg. of procaine amide were given intravenously. Because of persistent hypotension, arterenal was again used intravenously and at the same time, because of runs of ventricular extrasystoles, 400 mg. of procaine amide were also given intravenously. Subsequently she was given 0.6 gm. of quinidine, which resulted in marked widening of the QRS complexes but no decrease in the number of ventricular extrasystoles. Two and one-half hours after the use of arterenal and shortly after the use of quinidine, the patient became pulseless. Spontaneous respiration, however, continued, and she remained conscious. The electrocardiograms showed ventricular tachycardia to be present. In an effort to revert this arrhythmia to a normal cardiac rhythm she was given in succession intravenously, 1/150 grains (0.4 mg.) of atropine sulfate, 0.5 gm. of magnesium sulfate, and another 100 mg. of procaine amide, but the tachycardia persisted. One-half hour after the onset of tachycardia, 500 cc. of a 1.2% solution of potassium chloride were infused rapidly. One-half an hour later, the rhythm changed back to one in which the AV node appeared to be the pacemaker, and her blood pressure then gradually rose during the night to a level of about 80/60.

During the 24 hour period ending at 7 a. m. on Nov. 14, 1952, she received a total of 5,950 cc. of fluids intravenously, 2,000 cc. of which were in the form of whole blood. Her urinary output for this period was 110 cc. Although slightly incoherent, she was fully conscious. Chemical studies revealed the following values: 94 mEq. of chloride, 142 mEq. of sodium, 4.7 mEq. of potassium, 8.8 mg. of calcium, 28.8 mM. of carbon dioxide, and 28 mg. of urea nitrogen per 100 cc. Gradually during the day, her blood pressure fell to 60/40, and she became more confused and agitated. On the morning of Nov. 15, her urinary output for the previous 24

hour period had been 60 cc. Because of the hypotension and consequent oliguria, ephedrine was again given by drip in spite of its hazards in an attempt to raise her blood pressure. Two hours after the institution of this therapy, her blood pressure rose to 120/70, her pulse rate was 80, and respiration 16. During the next 24 hours, her blood pressure was maintained at 120/80. Every four hours 400 mg. of procaine amide were given to reduce the irritability of her heart. Oral feedings were again instituted. During this 24 hour period her urinary output rose to 195 cc.

On the morning of Nov. 16, her blood pressure was 120/80 and her general condition seemed fair. Her blood urea nitrogen level was 47. The dose of procaine amide was decreased to 250 mg. every sixth hour. At this time it was first noticed that her vision was poor. Attempts to visualize her eyegrounds were unsuccessful. Numerous rales were noticed in her chest.

By the morning of Nov. 17 we were more encouraged, as she had passed 500 cc. of urine during the previous 24 hour period, and her blood pressure remained at 120/80, her pulse in the 90's and her respirations around 26. At 9:35 a. m. on that day, however, she had another sudden episode and died without further resuscitative measures being attempted.

Autopsy Report.—An autopsy was performed with the following significant findings: In the thorax there was a "moderate amount" of straw-colored fluid in the right pleural cavity. The left pleural cavity contained cloudy serosanguinous fluid and many fine fibrinous adhesions. The left lung was stuck to the pericardium by recent adhesions associated with some purulent material.

The pericardium was inflamed, but the pericardial cavity was clear and there were no adhesions within it. The heart weighed 400 gm. and externally appeared normal except for an ecchymosis involving the right atrium. The right atrium and ventricle were dilated but the other chambers were normal. The valves were smooth and intact. The myocardium was paler than usual, but there was no area of softening or scarring.

The lungs, especially the left, were both partially atelectatic. There was very little gross edema fluid. There were a few small hemorrhagic consolidated areas, which were believed to be recent infarcts, but no emboli or thrombi were found in the larger vessels. A few thrombi were found in small pulmonary vessels. Microscopically much vascular congestion and some edema was present. The left lung showed active pleural reaction but no true bronchopneumonia.

Except for moderate atherosclerosis, the great vessels were normal. The liver showed passive congestion, and the spleen showed a recent hemorrhage. The intestinal tract was remarkable primarily for the fact that only 5 ft. (152 cm.) of small intestine remained between the ligament of Treitz and the cecum. There was a small fistulous tract from the site of closure of the colostomy through the abdominal wound.

The appearance of the kidneys was normal. On cut section, they showed good corticomedullary differentiation. Microscopically the vessels were congested, especially in the medulla. There were mild arteriosclerotic changes with thickening of the arteries, occasional hyalinized glomeruli, and some lymphocytic infiltration. The adrenals were of normal size, but the cortical tissue showed depletion of lipoid substance. The brain showed edema of the leptomeninges and a soft hemorrhagic area on the right parietal cortex about the size of a quarter of a dollar. There was no blood in the ventricles.

COMMENT

When the circulation has been arrested by asystole or ventricular fibrillation and death is imminent, thoracotomy and cardiac massage have generally been advocated as the form of resuscitative therapy to be used.¹ The case history presented above clearly shows that this form of treatment not only is lifesaving but may be carried out successfully twice in the same person. Although recently it has received relatively little attention in the literature, it has been known that under such circumstances a strong blow struck on the precordium may restore an effective circulation to a person with

so-called cardiac arrest.² In this patient the need for thoracotomy was obviated on two occasions by a simple blow on the chest. The speed and ease with which the precordium may be struck certainly justifies the trial of this procedure in many cases of cardiac arrest before cardiac massage is undertaken. Such treatment can be tried while a knife is being obtained.

It is impossible to state with certainty the type of cardiac dysfunction that was present during the episodes that were terminated by striking of the patient's chest. It seems most likely that the underlying mechanism was that of prolonged asystole, since spontaneous recovery from ventricular fibrillation, although reported,³ is rare. Ordinarily electrical defibrillation or the use of drugs is required before a normal rhythm can be regained. Two phenomena, however, that were observed during those episodes in which the heart was actually seen to be in ventricular fibrillation might indicate that such an arrhythmia was present during the first two attacks that were terminated by a blow on the chest, namely, (1) during the third attack repeated blows were followed by momentary effective cardiac beats and (2) during the fourth attack an effective beat was restored to the heart by massage alone without the use of drugs or electrical defibrillation.

The usually listed causes of ventricular fibrillation and cardiac standstill, or at least factors contributing to their development, are oxygen lack, toxic agents,⁴ either anesthetic or medicinal, reflex stimuli, trauma,⁵ electrical shock,⁶ and electrolyte imbalance.⁷ In this patient the only one of the above factors that might have played a role in the development of the first three attacks is an electrolyte imbalance. The fourth and fifth, or terminal episode, might also be related to the use of arterenol and ephedrine.

One can only speculate on the relationship of the electrolyte disturbance to the myocardial irritability present in this patient. Owing to prolonged diarrhea and inadequate absorption from her shortened bowel, she was depleted of many substances. The serum potassium level was low until two days prior to death and in retrospect should have been corrected with more vigor. The development of ectopic rhythm in the presence of low serum potassium has been reported,⁸ and Bellet⁹ has caused a ventricular tachycardia in a patient with low serum potassium to revert to normal rhythm by giving potassium chloride intravenously. Ventricular fibrillation

1. Johnson, J., and Kirby, C. K.: Cardiac Resuscitation, *S. Clin. North America* 29: 1745, 1949. Beck, C. S.; Pritchard, W. H., and Feil, H. S.: Ventricular Fibrillation of Long Duration Abolished by Electric Shock, *J. A. M. A.* 135: 985 (Dec. 13) 1947.

2. Nelson's Loose Leaf Medicine, Palmer, W. W., editor, New York, Thos. Nelson & Sons, vol. 4, p. 521F, 1946. White, P. D.: Heart Disease, ed. 4, New York, the Macmillan Company, 1951, p. 955.

3. Scott, R. W., and Sancetta, S. M.: Stokes-Adams Attacks Induced by Rectal Stimulation in a Patient with Complete Heart Block, *Circulation* 2: 886, 1950.

4. Lahey, F. H., and Ruzicka, E. R.: Experiences with Cardiac Arrest, *Surg., Gynec. & Obst.* 90: 108, 1950.

5. Wiggers, C. J.: Mechanism and Nature of Ventricular Fibrillation, *Am. Heart J.* 20: 399, 1940.

6. Wiggers, C. J.: Defibrillation of the Ventricles: An Editorial, *Circulation Res.* 1: 191, 1953.

7. Finch, C. A., and Marchand, J. F.: Cardiac Arrest by Action of Potassium, *Am. J. M. Sc.* 206: 507, 1943.

8. Bellet, S.; Steiger, W.; Nadler, C. S., and Gazes, P. C.: Electrocardiographic Patterns in Hypokalemia: Observations on 79 Patients, *Am. J. M. Sc.* 219: 542, 1950.

9. Bellet, S.: Personal communication to the authors.

has been reported in the presence of hyperpotassemia,⁷ but no such arrhythmia has been noted as a result of hypopotassemia. Although numerous patients have had lower serum potassium levels and more marked electrocardiographic changes than this patient without arrhythmia, it is entirely possible that the intracellular potassium deficit was of a greater magnitude than the serum levels indicated and was therefore related to the development of the episodic attacks reported above.

During this patient's illness, serum calcium levels also were moderately depressed. These, too, may have played some part in the electrocardiographic changes seen, but it seems unlikely that this degree of calcium deficiency was the sole causative factor in the production of her attacks of cardiac dysfunction. In one determination, the serum magnesium level was found to be normal. Whether some other unstudied ion was a factor in the development of these circulatory episodes cannot be said.

It is seldom that patients in whom cardiac arrest occurs on the hospital wards survive, as precious time is usually lost before circulation can be restored. It is of interest that this patient had three separate episodes of arrest of longer than four minutes' duration (the usually accepted upper limits for effective restoration) with full return of consciousness, and significant permanent damage to the nervous system did not appear to have occurred after the first two occasions.

SUMMARY

A case is reported with recovery on four separate occasions from prolonged episodes of cessation of circulation due in at least two instances to ventricular fibrillation. Efforts to prevent recurrence, however, were unsuccessful. It is suggested that in many instances of so-called cardiac arrest the precordium should be struck forcefully several times prior to use of thoracotomy and cardiac massage to restore the circulation. The possible relations of the development of this patient's episodes of cardiac arrhythmia to an electrolyte imbalance are discussed. It is felt the episodes of cardiac arrest may well have been related to depletion of intracellular potassium.

Lupus Erythematosus may present as a skin disease, as a subacute generalised disease or as an acute fulminating illness. Variations between these types are common and the manifestations of any of the generalized forms are protean. It is possible that the cutaneous form is, in fact, part of a generalized disease, since nearly all cases show a raised sedimentation rate, some show the presence of lupus erythematosus (L. E.) cells in defibrinated blood, and many patients remark on the feeling of increased well-being when the cutaneous lesions are controlled by treatment. . . . A case of subacute disseminated lupus may simulate many other conditions. It may present, for instance, as rheumatoid arthritis, atypical rheumatic fever with renal involvement, nephritis, pyrexia of unknown origin, pleural or pericardial effusions, lymphadenopathy, splenomegaly, rashes not necessarily of the common type, and in many other ways. Diagnosis may be helpful by finding anaemia, leucopenia, a high sedimentation rate, a reversed albumin/globulin ratio of the plasma proteins and red cells in the urine. The diagnosis is clinched by finding L. E. cells in suitable preparations of the blood.—F. Page, M.D., Mepacrine and Lupus Erythematosus. *Archives of Midlex Hospital*, October, 1953.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Gerber Products Company, Fremont, Mich.

Gerber's Strained Orange Juice.

This product is prepared from Florida oranges. It is processed and stored according to standards adopted by Gerber Products Company. These have been examined and accepted by the Council. The following information was submitted by the company. The juice is finely strained; the peel oil content is maintained at a point below 0.010%; dextrose in small amounts is added, when needed, for the maintenance of a sugar-acid ratio within specified limits; and the product is vacuum packed in 4½ ounce metal containers. The average ascorbic acid (vitamin C) content for the 1953 pack was 54.3 mg. per 100 ml. at the time of packing. The average caloric value is 14 calories per ounce.

"Junket" Brand Foods, Division of Chr. Hansen's Laboratory, Inc., Little Falls, N. Y.

Orange Flavored "Junket" Baby Rennet Mix.

Ingredients: Granulated sugar, confectionery sugar 6x, gum arabic, calcium phosphates, concentrated orange oil, U. S. certified color, and powdered rennet extract.

Analysis (submitted by manufacturer).—Total solids 99.7%, moisture 0.30%, ash 0.56%, fat none, protein trace, carbohydrate 97.2%, and undetermined organic matter 1.94%.

Calories.—3.89 per gram; 110.5 per ounce.

Use.—As a milk dessert in infant feeding.

Raspberry "Junket" Baby Rennet Mix.

Ingredients: Granulated sugar, confectionery sugar 6x, arrow-root starch, raspberry extract solids, calcium phosphates, powdered rennet extract, and U. S. certified color.

Analysis (submitted by manufacturer).—Total solids 99.5%, moisture 0.5%, ash 0.5%, fat none, protein trace, carbohydrate 98.5%, and undetermined organic matter 0.5%.

Calories.—3.94 per gram; 111.9 per ounce.

Use.—As a milk dessert in infant feeding.

Vanilla "Junket" Baby Rennet Mix.

Ingredients: Granulated sugar, confectionery sugar 6x, calcium phosphates, true vanilla solids, gum tragacanth, powdered rennet extract, artificial vanilla, and U. S. certified color.

Analysis (submitted by manufacturer).—Total solids 99.8%, moisture 0.2%, ash 0.7%, fat none, protein trace, carbohydrate 97.7%, and undetermined organic matter 0.4%.

Calories.—3.94 per gram; 111.9 per ounce.

Use.—As a milk dessert in infant feeding.

George B. Vrooman, Inc., Philadelphia.

Tux Brand Dietetic Pack Cut Green Beans

This product consists of Tendergreen variety beans, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 5.2%, moisture 94.8%, fat extract 0.11%, protein (N × 6.25) 0.88%, crude fiber 0.53%, available carbohydrate 2.92%, and sodium 1.02 mg./100 gm.

Calories.—0.17 per gram; 4.8 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Cut Wax Beans

This product consists of Kinghorn variety wax beans, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 4.6%, moisture 95.4%, fat extract 0.09%, protein ($N \times 6.25$) 0.82%, crude fiber 0.54%, available carbohydrate 2.37%, and sodium 0.80 mg./100 gm.

Calories.—0.13 per gram; 3.7 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Sliced Beets

This product consists of Detroit dark red beets, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 0.05%, moisture 92%, fat extract 0.05%, protein ($N \times 6.25$) 0.90%, crude fiber 0.53%, available carbohydrate 5.53%, and sodium 46.50 mg./100 gm.

Calories.—0.26 per gram; 7.4 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Diced Carrots

This product consists of Red Cored Chantenay carrots, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 6.56%, moisture 93.44%, fat extract 0.06%, protein ($N \times 6.25$) 0.78%, crude fiber 0.60%, available carbohydrate 4.04%, and sodium 50.1 mg./100 gm.

Calories.—0.20 per gram; 5.7 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Cream Style Corn

This product consists of Golden Cross variety corn, packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 22.7%, moisture 77.3%, fat extract 1.06%, protein ($N \times 6.25$) 2.56%, crude fiber 0.32%, available carbohydrate 17.88%, and sodium 3.20 mg./100 gm.

Calories.—0.91 per gram; 26 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Whole Kernel Corn

This product consists of Tendermost variety corn, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 17.4%, moisture 82.6%, fat extract 0.51%, protein ($N \times 6.25$) 2.04%, crude fiber 0.33%, available carbohydrate 13.81%, and sodium 1.2 mg./100 gm.

Calories.—0.68 per gram; 19.3 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Sweet Peas

This product consists of peas (Surprise variety), packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 11.7%, moisture 88.3%, fat extract 0.20%, protein ($N \times 6.25$) 3.14%, crude fiber 1.34%, available carbohydrate 5.33%, and sodium 8.58 mg./100 gm.

Calories.—0.36 per gram; 10.2 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Tux Brand Dietetic Pack Spinach

This product consists of Northland-Viking spinach, packed in water without any added salt.

Analysis (submitted by manufacturer).—Total solids 5.7%, moisture 94.3%, fat extract 0.31%, protein ($N \times 6.25$) 1.83%, crude fiber 0.60%, available carbohydrate 1.22%, and sodium 9.10 mg./100 gm.

Calories.—0.15 per gram; 4.3 per ounce.

Use.—For use in low-sodium and other therapeutic diets.

Mead Johnson & Company, Evansville, Ind.

Sustagen

Ingredients: Milk solids not fat, whole milk powder, Dextri-Maltose, calcium caseinate, dextrose, iron sulfate, vitamin A palmitate, calciferol, thiamine hydrochloride, riboflavin, niacin,

amide, calcium pantothenate, pyridoxine hydrochloride, choline bitartrate, folic acid, vitamin B₁₂ (crystalline), and ascorbic acid.

Analysis (submitted by manufacturer).—Total solids 97.5%, moisture 2.5%, ash (minerals) 4% (including calcium 0.7%, phosphorus 0.5%, and iron 0.003%), fat 3.5%, protein ($N \times 6.35$) 23.5%, and carbohydrate (by difference) 66.5%.

Vitamins and Minerals	Per 100 Gm.
Thiamine	1.1 mg.
Riboflavin	1.1 mg.
Ascorbic acid	33 mg.
Niacin	11 mg.
Calcium Pantothenate	4.4 mg.
Choline Bitartrate	55 mg.
Vitamin A	550 I. U.
Vitamin B ₁₂	0.44 mcg.
Folic acid	0.28 mg.
Pyridoxine HCl	0.55 mg.
Vitamin D	55 I. U.

Calories.—3.9 per gram; 110.6 per ounce.

Use.—A dietary supplement for oral use or tube feeding.

Gerber Products Company, Fremont, Mich.

Gerber's Strained Egg Yolks

This product consists of egg yolks and salt in water necessary for preparation and has been processed for 45 minutes at 240 F.

Analysis (submitted by manufacturer).—Total solids 29.38%, moisture 70.62%, ash 1.25%, fat (acid hydrolysis) 17.16%, crude fiber none, protein ($N \times 6.25$) 9.59%, and carbohydrates other than crude fiber (by difference) 1.38%.

Vitamins and Minerals	Per 100 Gm.
Vitamin A	640 I. U.
Beta Carotene	230 I. U.
Thiamine	0.106 mg.
Riboflavin	0.236 mg.
Ascorbic Acid	0.227 mg.
Niacin	Trace
Calcium	84 mg.
Phosphorus	173 mg.
Iron	5 mg.
Sulfur	0.003 mg.

Calories.—1.98 per gram; 56 per ounce.

Use.—For use in the feeding of infants and young children and in special diets.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

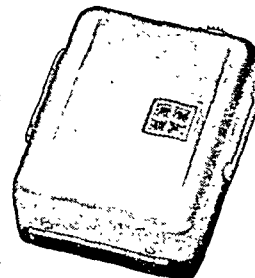
The following additional product has been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., Secretary.

Otarion Hearing Aid, Model B-15

Otarion, Inc., 4757 Ravenswood Ave., Chicago 40.

The Otarion Hearing Aid, Model B-15, uses three vacuum tubes, one 1.5 volt mercury type A-battery, and one 15 volt B-battery. The body of the instrument measures 62 by 45 by 22 mm. and weighs 70 gm. With batteries, earphone, and receiver cord the total weight is 108.5 gm. Evidence indicating sound construction and satisfactory performance was obtained by the Council.



Otarion Hearing Aid,
Model B-15

THE JOURNAL

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TESTS OF THYROID ACTIVITY

Although the use of radioactive tracer elements in the diagnosis of thyroid function has raised the question whether the basal metabolic rate (BMR) is obsolete, the new test may be expected to supplement rather than to supplant the older test.¹ To prevent the needless performance of a whole battery of thyroid function tests on every suspect the clinician should select the test(s) likely to be most informative regarding a given patient. In frankly hypothyroid or hyperthyroid patients the BMR is superior to determining the uptake of radioactive iodine by the thyroid but is subject to wide variations in euthyroid persons.² The tracer test is, therefore, most useful in evaluating borderline conditions.

Serum cholesterol determinations are of value only in diagnosing hypothyroidism, which is associated with abnormally high levels. Determination of the protein-bound iodine (PBI) in the serum correlates well with the tracer test, but in patients with hypothyroidism the tracer test is more sensitive. Although some believe the PBI test to be better than the BMR, the technique is not easy, and unless it is performed by a technician of known ability the results are likely to be unreliable. It is also unreliable in any patient who has ever had a sinus tract injected with iodized oil (Lipiodol) and in any patient who has ingested gallbladder dye within six months preceding the test.

The development of the gamma-detecting scintillation counter has made possible the use of radioiodine in amounts as low as 1 μ c or one hundredth of the usual dose. This makes it possible to obtain a recheck if necessary without exceeding a safe dose. Technicians can be easily trained to perform the tracer test, but, although capsules of radioiodine are now commercially available and their use requires no special monitoring, the test should be done only in clinics specializing in the treatment of thyroid diseases. In euthyroid persons the uptake in the thyroid is complete in 24 hours and amounts to about 30% of the tracer elements; in hypothyroid patients complete uptake takes a little longer and amounts to

about 10%; and in hyperthyroid patients complete uptake takes less time and amounts to about 70%. The tracer test has the advantage over the BMR that the cooperation of the patient is not required and no preliminary rest period is necessary. Nervousness and hypertension both elevate the BMR but do not affect the tracer test. A fair percentage of patients with severe toxic nodular goiter give a normal tracer test, and in this type of patient the BMR is more accurate. The tracer test is not valid if the patient is taking iodine in any form, and it must be remembered that iodine is present in some vitamin mixtures. Interference with the test following the ingestion of gallbladder dyes persists for about one week, following the administration of iodopyracet (Diodrast) for two weeks, and following the use of iodized oil (Lipiodol) for a longer time. The test should not be given until a few days have elapsed after the withdrawal of desiccated thyroid.

Determination of the percentage of radioiodine excreted in the urine in 24 hours is almost as accurate a test as determination of the uptake in the thyroid. Tracer testing is absolutely necessary before treatment with radioiodine. It may be concluded that, although the tracer test has not rendered the BMR obsolete, it is an accurate, sensitive, practical, safe, and rapid test of great value in properly selected cases.

USE OF STANDARD NOMENCLATURE

One of the best and most helpful publications of the American Medical Association is its "Standard Nomenclature of Diseases and Operations." It provides a way of setting up records so that meaningful statistics can be compiled, hospital records are easily understood by all who read them, and physicians can understand what others are talking about when diseases and operations are mentioned. This book has had a profound effect on medical teaching, medical writing, and the keeping of medical records. Some indication of its reception and employment lies in the figures concerning its use. "Standard Nomenclature of Diseases and Operations" is used in 91% of federal hospitals, 85% of more than 300 new Hill-Burton hospitals, and 74% of all hospitals in the United States. There seems to be a direct relation between size of hospital and use of this book; the larger the hospital in terms of beds the more widely used the book.

The purpose of any disease index is to provide a record of data relating to specific diseases. The use of the data determines the method of application of the nomenclature. The coding in Standard Nomenclature may be simplified, expanded, or adjusted to meet the needs. Frequency of referral and type of requests that result in the use of the file will determine which method is most suitable for the institution. Of the Hill-Burton hospitals, 60% are using Standard Nomenclature in its simplified form. In 65% of these hospitals the coding is being done by the record librarian, in 15% by physicians, and in 20% by other hospital personnel.

1. Seed, L.: Is the B. M. R. Obsolete? *Illinois M. J.* 104: 113-117 (Aug.) 1953.

2. Barrett, T. F., and others: Evaluation of a Thyroid Panel: Practical Application of Scintillation Counter in Diagnosis of Diseases of the Thyroid, *J. A. M. A.* 152: 1414-1417 (Aug. 8) 1953.

Proper orientation of all personnel who code diseases and operations according to Standard Nomenclature is an important step. The purpose and the value of the index should be presented, and the person who is coding must have a working knowledge of the nomenclature as well as being conversant with the basic principles. These are not difficult requirements, and their application in all hospitals would mean much for everyone, from researcher to hospital administrator, from practitioner to record librarian, and from student to teacher.

VITAL STATISTICS AND MEDICAL RESEARCH

A physician experiences a renewed feeling of satisfaction whenever data from any source reveal further manifestations of the lengthening of the average human life. Although every scientist and engineer, and in fact every productive worker in industry and agriculture, can claim some credit for the improved standards of living that have brought this about, the physician deals with the immediate problems of birth, sickness, and death and feels that he is making an especially direct contribution to a noble cause.

Medical progress is fortunately measurable in figures for morbidity and mortality. Efforts to measure progress in other fields, and to assess the accomplishments of social agencies such as national governments and supranational economic organizations, lead directly to the difficult problem of quantitatively evaluating such things as happiness, culture, good will, and freedom. Moreover, if progress in political science is measured in terms, say of soldiers killed in combat, or of civilians displaced, starved, or exterminated in the world's recent history of blockades, bombings, and invasions, the figures are embarrassing, for they ought to be decreasing, not increasing. One is tempted to conclude that medical progress has been more substantial than political progress. In any case, comparisons are most easily made in terms of numbers, and a constant keeping of statistics is essential if progress is to be measured and continued.

It was regretted by many that the League of Nations, which put itself out of existence at a last meeting on April 18, 1946, in Geneva, received so little popular recognition for the medical aspects of its work. Its political failures were discussed in merciless detail after every crisis; its steady, substantial work in mapping the distribution of disease and detecting the outbreaks of epidemics was not equally publicized.

These reflections are prompted by two impressive articles in a recent number of the *British Medical Journal*. The first¹ is the presidential address, by Sir Russell Brain, to the First World Health Organization International Congress on Health and Vital Statistics, in which he points out that in respect to health the world today is a single community. "Infection," he says, "can now spread in a few days from one end of the world to the other, and may thus enter a country in which, as a result of their bacteriological history, the inhabitants possess a poor immunity to the invader." The international

activities relating to health begun by the League of Nations now seem more important than ever and must be continued by the World Medical Association and the World Health Organization.

Unfortunately, Sir Russell observes, the work of preventive medicine, especially the work with statistics, is not easily glamorized. A youthful motion picture audience is fascinated by the picture of a surgeon in the operating room or of a psychiatrist quieting a disturbed patient, but it takes more mature minds to appreciate the importance, the tensions, and the occasionally exciting discoveries in vital statistics. Yet it is to this painstaking application of mathematics that we must look for constant guidance in efforts to prevent disease and increase well-being.

Sir Russell's remarks are aptly followed in the *British Medical Journal* by a statistical paper by Colin White² with the typically unglamorous title "Sampling in Medical Research." Readers who have learned from experience what explosive material can come in such packages will not be deterred by the title and are rewarded by a lively discussion of fallacies arising from biased methods of sampling. Authors of clinical papers need to be aware of the kind of bias that may enter into hospital statistics, into postmortem data, and into series of surgical histories. Examples are given, especially of the "fallacy of the interesting case." Exceptional patients "provide welcome relief from the dullness of examining a series composed mainly of normal people," but they are likely to involve the unwary investigator in a phenomenon called by Galton, more than half a century ago, regression toward the mean. Many physiological measurements like blood pressure and metabolic rate fluctuate from hour to hour, from day to day, and the persons who happen to have the highest or lowest values at any given moment are very likely to be found nearer the average next time they are observed. Anything whatever done in the interval between observations will appear to have had a "normalizing" effect on the extreme cases. This phenomenon has been rediscovered independently by other investigators trying to account for odd therapeutic results and has been perhaps more appropriately renamed centripetal drift. White shows how this phenomenon explains the results of administering iron and regulating the diet in supposed cases of anemia in pregnancy.

The outstanding investigation in which the question of bias arises is that of Kinsey and his associates.³ Many readers feel they must choose between the suppositions either that the women interviewed by Kinsey were exceptionally mendacious or that they were shamefully abandoned, and a recent writer in a midwestern American weekly was so distressed by this dilemma that he frankly stated he was writing his review without having read the book. This exhibition of squeamishness makes one won-

1. Brain, R.: Vital Statistics and the Doctor, *Brit. M. J.* 2:1283-1284 (Dec. 12) 1953.

2. White, C.: Sampling in Medical Research, *Brit. M. J.* 2:1284-1288 (Dec. 12) 1953.

3. Kinsey, A. C.; Pomeroy, W. B.; Martin, C. E., and Gebhard, P. H.: *Sexual Behavior in the Human Female*, Philadelphia, W. B. Saunders Company, 1953.

der what would happen in hospitals if laboratory technicians suddenly refused to examine some of the materials they receive every day. In the present case the question is, of course, what kinds of bias may have affected Kinsey's results, and in what respects his conclusions must be qualified. White takes up this aspect of Kinsey's work, with other examples as well, and shows how such procedures as random selection can prevent mistakes.

If the "fallacy of the interesting case" is to be avoided, the study of the usual must be carried on as carefully as that of the unusual. The physician makes an indispensable contribution each time he fills out a birth or death certificate. Older citizens recall the embarrassments, exasperating correspondence, and costly delays that have been known to result, in the past, from the occasional failure of old-time physicians to report births, for instance. The modern physician realizes how essential it is to be prompt and conscientious in such matters, and the gradual extension of the registration area of this country until every state was included makes inspiring history.

DIAMIDINE THERAPY OF BLASTOMYCOSIS

Blastomycosis is a serious infection caused by the fungus *Blastomyces dermatitidis* and confined chiefly to the North American continent. While the cutaneous form of the disease often appears to respond to iodides, x-ray treatment, or surgical excision, the systemic form has proved notoriously resistant to therapy. Great interest, therefore, is attached to the numerous reports on the successful treatment of both cutaneous and systemic blastomycosis by certain aromatic diamidine compounds.¹

The clinical trial of diamidine derivatives in blastomycosis was prompted by a report by Elson in 1945 that a number of fungi, including *Blastomyces dermatitidis*, were inhibited *in vitro* by propamidine.² Propamidine and the more effective but more toxic stilbamidine are members of a series of aromatic diamidine compounds synthesized about 15 years ago by British scientists after it was shown that a related but highly toxic compound, decamethylenediguanidine dihydrochloride (Synthalin), had marked trypanocidal activity. Both propamidine and stilbamidine are effective in the treatment of trypanosomiasis and leishmaniasis, though their toxicity has restricted their use particularly in the latter condition.³

In discussing the toxic potentialities of the diamidines, much emphasis is placed on the necessity of employing freshly prepared solutions only. These drugs are unstable in aqueous solution, especially in the presence of sunlight, and break down to give toxic products. Many of the earlier reported toxic effects occurred with solutions prepared some time before use.⁴ The immediate toxic effect of the aromatic diamidines consists of circulatory collapse, which, however, can be largely obviated by administration by slow intravenous drip. It is questionable whether late hepatic or renal damage arise from therapeutic doses of freshly prepared solutions; however, the toxicity of these compounds may be enhanced in the

presence of hepatic or renal disease, and they should be used cautiously if at all under such conditions.

A curious late manifestation of diamidine toxicity is the development of fifth cranial nerve neuropathy, apparently reversible, and manifested by paresthesia, hypalgesia, and anesthesia over the region supplied by the trigeminal nerve. This effect is reminiscent of that which may follow exposure to trichloroethylene. Like trichloroethylene, stilbamidine has been reported to give relief in tic douloureux.⁵ Toxic psychosis has been reported following stilbamidine therapy; however, the patient was emotionally disturbed prior to administration of the drug.⁶

Recently, Snapper has reported on the use of 2-hydroxystilbamidine in blastomycosis.⁷ Previous work had led him to conclude that this compound is more stable in solution than stilbamidine and does not produce trigeminal neuropathy. Encouraging improvement was reported in three cases of systemic blastomycosis and one case of the cutaneous form of the disease. No untoward effects were noted other than a transitory weakness, dizziness, and hypotension in one patient after rapid injection of the drug.

The effect of the aromatic diamidines in other systemic fungus infections is under study. *In vitro* studies suggest that these compounds have quite a wide spectrum of activity.⁸ Preliminary clinical reports indicate they may be of value in actinomycosis,⁹ nocardiosis,¹⁰ and sporotrichosis.¹⁰ Future work will doubtless be directed toward expanding the field of usefulness of these drugs and to the development of more effective and less toxic derivatives.

1. (a) Colbert, J. W., Jr.; Strauss, M. J., and Green, R. H.: Treatment of Cutaneous Blastomycosis with Propamidine: Preliminary Report, *J. Invest. Dermat.* 14: 71, 1950. (b) Schoenbach, E. M.; Miller, J. M.; Ginsberg, M., and Long, P. H.: Systemic Blastomycosis Treated with Stilbamidine: Preliminary Report, *J. A. M. A.* 146: 1317 (Aug. 4) 1951. (c) Schoenbach, E. B.; Miller, J. M., and Long, P. H.: The Treatment of Systemic Blastomycosis with Stilbamidine, *Ann. Int. Med.* 37: 31, 1952. (d) Baker, R. D.; Warrick, G. W., and Noojin, R. D.: Acute Blastomycotic Pneumonia: Report of a Fatal Case of Twenty Days' Duration, *A. M. A. Arch. Int. Med.* 90: 718 (Nov.) 1952. (e) Curtis, A. C., and Harrell, E. R., Jr.: Use of Two Stilbene Derivatives (Diethylstilbestrol and Stilbamidine) in the Treatment of Blastomycosis, *A. M. A. Arch. Dermat. & Syph.* 66: 676 (Dec.) 1952. (f) Pariser, H.; Levy, E. D., and Rawson, A. J.: Treatment of Blastomycosis with Stilbamidine: Report of a Case, *J. A. M. A.* 152: 129 (May 9) 1953. (g) Stillians, A. W., and Klempner, H. E.: Blastomycosis in Tuberculous Patient, *ibid.* 153: 560 (Oct. 10) 1953. (h) Ostfeld, A. M.: Effect of Stilbamidine on Cutaneous Blastomycosis, *Am. J. Med.* 15: 746, 1953.

2. Elson, W. O.: The Antibacterial and Fungistatic Properties of Propamidine, *J. Infect. Dis.* 76: 193, 1945.

3. Stilbamidine Isethionate, report of the Council on Pharmacy and Chemistry, *J. A. M. A.* 153: 1174 (Nov. 28) 1953.

4. Schoenbach, E. B., and Greenspan, E. M.: The Pharmacology, Mode of Action and Therapeutic Potentialities of Stilbamidine, Pentamidine, Propamidine and other Aromatic Diamidines: A Review, *Medicine* 27: 327, 1948.

5. Smith, G. W., and Miller, J. M.: The Relief of Tic Douloureux with Stilbamidine, *Ann. Int. Med.* 38: 335, 1953.

6. Forsey, R. R., and Jackson, R.: Toxic Psychosis Following Use of Stilbamidine in Blastomycosis, *A. M. A. Arch. Dermat. & Syph.* 68: 89 (July) 1953.

7. Snapper, I., and McVay, L. V.: The Treatment of North American Blastomycosis with 2-Hydroxystilbamidine, *Am. J. Med.* 15: 603, 1953.

8. Footnote 3. Fahlberg, W. J.: A Comparison of the Fungistatic Properties of Three Aromatic Diamidines, *Proc. Soc. Exper. Biol. & Med.* 84: 84, 1953.

9. Miller, J. M.; Long, P. H., and Schoenbach, E. B.: Successful Treatment of Actinomycosis with "Stilbamidine," *J. A. M. A.* 150: 35 (Sept. 6) 1952.

10. Harrell, E. R.; Bocobo, F. C., and Curtis, A. C.: Sporotrichosis Successfully Treated with Stilbamidine, *A. M. A. Arch. Int. Med.* 93: 162 (Jan.) 1954.

ORGANIZATION SECTION

STATEMENT OF DR. WALTER B. MARTIN TO HOUSE COMMITTEE ON INTERSTATE AND FOREIGN AFFAIRS

I am Dr. Walter B. Martin of Norfolk, Va., where I am engaged in the active practice of medicine. I am President-Elect and a member of the Board of Trustees of the American Medical Association. I am appearing here today with Dr. Louis H. Bauer, New York City, immediate Past President of the Association, Dr. David B. Allman, Atlantic City, N. J., Chairman of our Committee on Legislation, Dr. George F. Lull, Secretary and General Manager of the American Medical Association, and several members of our staff. We are here at the invitation of your committee to participate in the general health inquiry which you have been conducting for the past several months.

As you know, the President of our Association, Dr. Edward J. McCormick of Toledo, Ohio, testified briefly before your group on Oct. 1 and reviewed the activities of the American Medical Association in the field of medical research. Since his appearance, many individuals and organizations have presented their views concerning the condition of the nation's health. Frequently, in their testimony these individuals and organizations have decried the many inadequacies in this country's over-all medical and health picture.

The American Medical Association would be the first to admit that despite the remarkable record of medical achievements much remains to be accomplished. In practically every instance of recognized deficiency, the A. M. A. has also been the first organization to undertake a positive, constructive program of action. We know full well that certain medical scientific mysteries still must be solved. We are aware that in some areas problems of inadequate supply or improper distribution of medical personnel and facilities exist. We also realize that the best of medical care should be made available to all our citizens, regardless of their economic status, and that every effort should be made to alleviate the financial burden imposed by long-term illness.

We feel, however, that in an effort to create public sentiment in support of a government-controlled medical care program, a distorted picture of the health and medical situation in this country has been drawn. At times the magnitude of such problems has been exaggerated while actual progress toward solving them has been minimized. To lose perspective is to lose judgment. For this reason we would like to clarify certain misconceptions which have arisen in regard to the nation's health and medical needs.

Many of those who testified before this committee indicated that increased medical costs were proving financially disastrous to families faced with illness or accidents. Medical costs—like all other costs—have risen in the last few years. Statistics presented by the United States Department of Labor for the third quarter of 1952, however, revealed that living costs had increased 90.8 per cent since 1935-1939 while medical costs had increased only 65.5 per cent in the same period. Between 1935-1939 and 1950 average weekly wages rose 165 per cent while physicians' fees climbed only 48 per cent. As a result, the average person works only 60 per cent as long today to pay for the same amount of medical services.

New techniques and new drugs enable physicians to shorten length of illness and reduce hospital stays as well as wage loss. As a result, the total medical bill for many illnesses often actually is less than it was 15 years ago.

Proof that the cost of medical care presents no great problem to the majority of American families was given in a survey completed for the Federal Reserve Board last year. Of about 53,000,000 families in the United States, almost 43,000,000—over 80 per cent—reported no medical debts whatsoever. One million families owed from \$200 to \$1,000, while another 200,000 owed more than \$1,000. That would indicate that less

than 3 per cent of all the people in the survey need help to pay their medical bills. The remaining 9,000,000 families were listed as in debt for medical expenses in amounts varying from \$1.00 to \$200.

Some critics point to the increasing death rate from heart disease and cancer as an indication of a medical crisis. Actually, this is a heartening sign of great medical progress. The median age at death in the United States has jumped from 30 to 66 years. Twenty years from now, although the death rate from certain diseases in our aging population may be higher, the length of life will be greater and the mortality rate for each age will be lower. Health progress and the number of deaths each successive year are simply two different ideas. A physician can never conquer death—he can only postpone it. Persons who are saved by medical advances and skills from death at an early age later fall victim to the degenerative diseases which now appear to be increasing.

A serious shortage of doctors has been alleged. Actually, we have more doctors than any other nation, and we have more in proportion to population than any other country except Israel, which has an abnormal influx of refugee physicians from Europe. For more than twenty years the supply of doctors has been increasing at a faster rate than the general population. It is estimated that the period of 1950-1960 will bring another 30 per cent increase in the supply of physicians.

Today we have a total of 220,104 physicians—the largest in our history. Of this number 159,120 are in active practice. All the rest, except for about 9,700 who are retired or not in practice, are serving American health needs in research, teaching, hospitals and government service. On the basis of an estimated population of 160,000,000 in 1953, we now have one physician for every 727 persons, or approximately one physician actually engaged in the practice of medicine for every 1,000 persons.

For the fifth consecutive year, the total number of students enrolled in approved medical schools has established a new record. The number of students graduated constitutes the largest group ever graduated in one academic year. Enrollments in the country's 72 medical and seven basic science schools during 1952-1953 totalled 27,688, or 2.3 per cent more than the 27,076 enrolled during 1951-1952. The estimated number of graduates for 1953-1954 based on enrollments reported for senior classes in schools, is even greater—6,831—than last year (6,668) which exceeded by 279, or 4.4 per cent, the previous record established in 1947, when at the termination of the wartime accelerated program several schools graduated more than one class.

It is obvious that in the areas of medical progress, medical cost and doctor supply the picture is far brighter than some would have you believe. We hope that we have clarified some of these misconceptions.

For more than a hundred years the American Medical Association has been dedicated "to the promotion of the science and art of medicine and the betterment of public health." Our devotion to these principles has not taken the form of mere lip service, but rather of concrete, constructive programs designed to bring better health to the American people.

The record of American medicine's achievements in elevating the standards of medical education, fighting medical quackery, maintaining ethical standards of medical practice and safeguarding health through the evaluation of drugs, foods, physical devices and techniques as well as in the areas of school, rural and industrial health is an outstanding one. We would like to reiterate for this committee in as brief a fashion as possible our Association's specific efforts to provide the best of medical services and facilities and to distribute them equitably throughout the nation.

1. *On Behalf of Medical Progress.*—Medicine has come a long way down the medical progress road in a fantastically short time. Today America is the healthiest large nation in the world. Babies born today can expect to live at least twenty years longer than those born in 1900. Women can face child-

birth with little or no fear, for the chances of surviving pregnancy, childbirth and confinement are better in the United States as a whole than 999 out of 1,000. The dread diseases that once were killers—typhoid fever, smallpox, diphtheria, pneumonia and many others—have been brought under control.

Since 1900, while our total population has more than doubled, the number of persons 65 years of age or older has more than quadrupled. This accounts largely for the marked rise in the death rates for heart disease, cancer and other diseases of old age.

Within a few decades vitamins, sulfa drugs, the antibiotics and hormones have been added to the physician's armamentarium against disease. American surgeons today are performing delicate, life-saving operations on the heart, lungs, brain, stomach, kidneys and other vital organs which just a few short years ago would have been impossible.

The past two years have brought heartening advances in the battle against infantile paralysis. News of successful trials of gamma globulin from human blood was followed with announcements indicating that the next two or three years may bring a vaccine effective against poliomyelitis.

More recently, medicine has harnessed byproducts of the atomic age called radioisotopes to kill certain forms of cancer and to trace vital body functions. While the basic cause or causes of cancer or any one specific cure has not been discovered, the early diagnosis of the disease and its surgical or radiation treatment has resulted in the cure of many cases. New methods of treatment have been evolved with drugs and atom-smashing machines. The whole field of atomic medicine may pave the way to new and startlingly significant medical discoveries.

It is also estimated that the efficiency of the average physician has increased about 30 per cent in the past 15 years. This has come about through the use of new drugs and antibiotics, new or improved techniques, modern equipment, increased auxiliary help from laboratories and technicians, improved transportation and communication and better coordination of all medical facilities.

2. On Behalf of Medical Education.—The high standards of medical education in the United States have resulted directly from the medical profession's efforts over the past 50 years to protect the public against unqualified, poorly trained doctors. Today, all of the nation's 79 medical schools are approved institutions which meet high requirements involving their teaching staffs, curricula, classroom and clinical facilities, hospital teaching programs and all-over educational policies. Two additional schools, University of Miami and University of California in Los Angeles, have medical schools which have not yet graduated their first class. Another medical school in New York is contemplated, to begin operation in 1955. In addition, high standards also have been established for the approval of intern and residency training programs in hospitals, and a growing emphasis has been placed upon postgraduate education and refresher courses to keep physicians abreast of the latest medical developments. During 1953, for example, a total of almost 1,600 postgraduate courses was offered by the nation's medical schools, medical societies, hospitals and other health agencies. A. M. A.'s two scientific meetings each year, coupled with the meetings of the various specialty groups, offer American physicians the most complete postgraduate study opportunities in the world.

A. M. A. also helps elevate standards in auxiliary fields of medicine by approving upon request schools for laboratory technicians, occupational therapists and other allied fields.

To assure an increasing supply of physicians in this country the American Medical Association has actively encouraged expansion of medical schools and facilities and the development of new medical schools in certain areas. This increase in enrollments, the expansion of teaching programs and the rising costs of operation since World War II have created major financial problems in some of our medical schools.

In the spring of 1949 medical leaders and others sponsored the establishment of the National Fund for Medical Education, whose purpose is to raise unrestricted funds annually on a national scale from voluntary sources for the support of medical schools. In 1950 the American Medical Association set up the American Medical Education Foundation to raise funds

from individual physicians and medical groups. The success of this endeavor is told in these figures: At the end of 1953 the American Medical Education Foundation recorded a gross return of \$1,089,962. The American Medical Association has given an additional \$2,000,000 in four successive grants to this project since 1950. The National Fund for Medical Education in its three year history has contributed \$4,764,152 to the nation's medical schools.

Medical schools report that these grants have enabled them to secure additional teachers, retain others by providing urgently needed salary increases, purchase teaching equipment and rehabilitate or expand teaching facilities.

We are convinced that federal financial assistance to the medical schools for operating purposes is not desirable. The medical schools still need money, however, and we propose:

(a) Increased efforts to raise voluntary funds through the American Medical Education Foundation and the National Fund for Medical Education.

(b) Adoption of legislation authorizing one-time federal grants for construction and renovation of the physical plant of medical schools.

3. On Behalf of Better Doctor Distribution.—Because many problems of so-called doctor shortage are in reality problems related to physician maldistribution, the American Medical Association has established a placement bureau to serve as a clearing house for information in answer to requests from physicians seeking a location and from communities seeking a physician. Placement programs are now in active operation in at least 37 states, and at least 32 are sponsored by state medical societies. The A. M. A. is sponsoring rural health conferences and programs and preparing literature to help communities attract physicians in an effort to stimulate public as well as medical efforts to bring doctors into needed areas.

4. On Behalf of Allied Health Personnel.—Problems of health personnel resources are not problems of physician-supply alone. The American Medical Association has for some time been concerned over the existing nurse shortage and in June 1947 appointed a committee to study and report on this problem. On the basis of this report and on subsequent information obtained from the official nursing associations we have concluded that in certain areas there is a need for construction of new nursing schools and for the modernization of existing facilities. Although the problem is fundamentally a local one which each state should solve on the basis of its individual needs, the American Medical Association favors legislation embodying:

(1) One-time federal grants-in-aid to states, based on the Hill-Burton Act formula and administrative machinery, for construction, equipment and renovation of the physical plants of nursing schools, on a matching basis, with no part of the funds to be used in any manner for operational expenses or salaries;

(2) Grant of federal funds to the Committee on Careers in Nursing or some comparable private agency to help support a nurse recruitment program; and

(3) A temporary grant-in-aid program, not to exceed five years and administered by the states, to provide scholarships for advanced nursing education to aid in the development of a larger corps of teachers.

We believe that these suggestions would meet the current need and at the same time safeguard the freedom and independence of educational institutions.

5. On Behalf of Increased Hospital Facilities.—Without proper facilities physicians and allied health personnel are unable to operate at peak efficiency. The increased community interest in health problems in general has been reflected in the construction of an amazing number of community hospitals. Many have been planned and financed completely with private or tax funds at the local level; others have been built with the assistance of the federal government.

The American Medical Association has continually supported the Hospital Survey and Construction Act, more familiarly known as the Hill-Burton Act, which became law in August 1946. Since the approval of the first projects in fiscal year 1948, over a billion dollars has been spent by the federal govern-

ment, states and communities in the construction of hospitals under this program. In future construction of health facilities, particular attention should be given to institutions for the chronically ill. We believe these should be constructed contiguous to or in connection with general hospitals.

The American Medical Association not only favors federal legislation for hospital construction but is energetically working to raise standards of existing hospital facilities. We are an active member of the Joint Commission on the Accreditation of Hospitals, along with the American College of Physicians, the American College of Surgeons, the American Hospital Association and the Canadian Medical Association. This is a private organization designed to conduct an inspection and accreditation program which will encourage physicians and hospitals voluntarily to (1) apply basic principles of organization and administration for efficient patient care; (2) promote high quality medical and hospital care in all its aspects; and (3) maintain the essential diagnostic and therapeutic services in the hospital through coordinated effort of the organized medical staff and the governing board of the hospital.

6. On Behalf of Solving the Economic Problems of Medicine.—We must consider two groups of individuals when discussing the problems of the cost of medical care: (1) those who are able to pay normal costs of medical care and (2) those who require assistance in meeting their medical bills. For those who are willing and able to meet their obligations, the medical profession has been carrying on the following positive program:

(1) **Continued Promotion of Voluntary Health Insurance:** The American Medical Association believes that voluntary health insurance provides one of the best methods by which the average American can finance a substantial portion of his medical and health costs.

For years we have advocated and strongly promoted the sale of voluntary health insurance as one of the aids to cushion the economic shock of illness. The growth of voluntary health insurance, which embraces benefits for hospital, surgical and medical expense, has been phenomenal during the past few years. By Jan. 1, 1953, nearly 92 million Americans had some form of hospital expense benefit insurance. At that same time over 73 million were protected by some form of insurance against the cost of surgical care and nearly 36 million persons had coverage providing some medical expense benefits in addition to surgery. This amazing progress has been achieved without benefit of government subsidy.

The problem of providing economic protection against "catastrophic illness"—any illness, acute or chronic, the financial impact of which seriously disrupts the family budget—is now receiving ever increasing study and experimentation by several agencies in both the private and nonprofit fields.

To meet the costs of extended illness or injuries which the average man cannot afford to pay, a number of private and non-profit companies are now writing "major medical expense" insurance, sometimes called catastrophic coverage or medical disaster insurance. Such policies are designed to cover cases of extended disability, those which are relatively infrequent, but financially severe. Generous amounts of maximum benefits, ranging from \$2,500 to \$10,000, are provided, and most policies provide for reimbursement of expenses in excess of a minimum deductible amount which ranges from \$100 to \$500. In many instances some basic programs provide benefits which fulfill a substantial portion of the deductible amount under these policies.

Another principle followed generally in major medical expense insurance policies is the use of a co-insurance provision. A percentage, between 70 and 80 per cent, of the expense in excess of the deductible amount is reimbursed, making the insured person a co-insurer to the extent of the balance of the expenses. Many who are familiar with this class of insurance feel that the insured person must have a financial interest in all health expenditures to the end that there will be less tendency to demand services which may not be necessary.

Major medical expense policies are still in the experimental stage, but at the end of 1953 more than a million persons were covered by these policies and the numbers are increasing rapidly.

The past 10 to 15 years of constructive advances in the field of voluntary health insurance have shown that: The great majority of American people do want to pay their own way. It is desirable that the individual should participate in the cost of his illness for the purpose of reducing long-stay and abuses. A certain amount of medical care is an expectable item on any family budget. For this reason the promotion of the benefits that are comprehensive is not sound because it is the need for protection against the financial impact of truly major sickness or injury that must be emphasized.

(2) **Policing Its Own Ranks:** Every medical society in the country has been urged by the American Medical Association to crack down firmly on any physician who charges exorbitant fees.

(3) **Establishing Mediation Committees:** In all professions, friction sometimes arises between the professional members and those they serve. The medical profession has established mediation, or grievance, committees to hear and fairly resolve complaints against physicians in regard to fees or care provided. Evidence of local societies' concern for the patient's satisfaction is the fact that nearly 500 medical societies now operate such committees.

(4) **Encouraging Fee Discussions:** Misunderstanding is often the basis for complaints about the cost of medical care. In many cases, when patients talk over expenditures with their doctors, friction disappears. For this reason A. M. A. has been encouraging physicians to estimate in advance with patients not only medical charges but hospital, drug and other costs involved in illness.

(5) **Stimulating Good Business Practices:** To reduce fee misunderstandings the American Medical Association urges all physicians to itemize medical bills and to follow orderly business procedures in submitting medical bills.

Since time immemorial, the physician has been called upon to render professional services to the indigent without compensation. Every doctor spends a proportion of his working hours dispensing free medical care. The dollar value of these services is considerable but cannot be estimated with accuracy.

Because protests have been made at various times that medical care is being denied certain individuals because of its cost, the American Medical Association in 1952 urged its societies to undertake energetic campaigns to organize and vigorously promote programs which at the county level offer to provide services of a physician to anyone unable to pay. Such programs have been highly successful. It is necessary to bring such programs to the attention of the public, because in many instances the public is not aware that medical service is available locally without cost to those unable to pay.

In addition to setting up the mechanisms to provide medical care to all, regardless of ability to pay, 577 county medical societies are taking an active part in providing medical care for indigent citizens in cooperation with state and county authorities.

There are two groups of individuals who are unable to meet the cost of illness at the time it occurs—the frankly indigent and the medically indigent.

The indigent are dependent on outside assistance for the basic necessities of life. The American Medical Association believes that the medical care of this group is a local and state government responsibility. No program of health insurance is practical for this group since they are unable to purchase it. We believe that direct payment at the time of illness for this group is the most practicable and economic approach.

The medically indigent are normally able to meet the cost of their daily needs and to purchase health insurance. They are, however, unable to meet the cost of illness when it occurs. This group can be reduced by educating them in the necessity of giving health protection priority in their expenditures. However, when illness occurs, they require aid by direct payment of their health costs from local and state funds.

We are carrying on through personal field visits studies of successful local indigent medical care plans with the purpose of extending adequate care to all persons who are indigent and to the borderline group which we call the medically indigent. From the findings we expect to obtain useful data that will aid in the solution of this very difficult problem.

In view of the progress being made toward solving our health problems we have reasons for encouragement but not complacency. The American Medical Association has always accepted and carried out the responsibility of leadership in safeguarding the public health, raising the standards of medicine and making good medical care available to the people.

This nation's medical progress over the past half century has given the United States the world's highest standards of health and medical care and has made it the world center of medical education and research. That progress has been achieved under a voluntary system which emphasizes free enterprise, individual initiative and responsibility, and cooperative effort. It has been accomplished not by physicians alone but with the help and cooperation of allied professions, many branches of science, nurses, hospitals, business, industry, education and all segments of American society.

Our most urgent effort should now be directed to the solution of the problem of the medically indigent and the chronically ill. We believe that this objective can be reached without major change in our existing mechanism.

FEDERAL MEDICAL LEGISLATION

Health Services Reinsurance

Congressman Wolverton (R., N. J.) in H. R. 6949 would create an independent federal health reinsurance corporation and authorize a 50 million dollar appropriation with which to start reinsurance of nonprofit health plans against losses over \$1,000, thus encouraging them to write unlimited coverage. The federal corporation would repay the health plan two-thirds of the claims in excess of \$1,000 paid in any 12 months. Premiums charged for reinsurance health service contracts would be 2% of the total gross payments received by the health service association. Three directors would be appointed for six year terms by the President of the United States and would be confirmed in the Senate. The health plan would be required to limit its out-of-state subscribers to 25% of the total membership and would have to accept nongroup applicants. The physicians and hospitals would have to agree to limit any additional charges to 25% of any established fee schedule.

Under the proposed plan, premiums would be based on the subscriber's income. No participating health plan would be permitted to pay its subscribers in cash benefits. Subscribers to health plans would be covered up to 75% on the cost of the first 12 visits by licensed physicians and up to 95% on the cost of all benefits on medical care contracts. Operating expenses of the federal corporation would be covered, when necessary, by appropriations from Congress. Health service associations would have the right to appeal federal corporation decisions to the U. S. Circuit Court of Appeals. This measure is not the President's reinsurance bill, which has not as yet been introduced. This bill is similar to H. R. 8746, introduced by Mr. Wolverton, June 7, 1950. The new bill was referred to the Interstate and Foreign Commerce Committee.

Loans for Construction of Medical Facilities

Congressman Wolverton (R., N. J.) would amend the Hill-Burton Hospital Construction Act, by H. R. 6951, to provide mortgage loans insurance similar to Federal Housing Administration loans, to stimulate private investment for the construction of medical facilities. The bill requires at least 75% of any facility for which an insured loan is granted to be devoted to members of a group participating in a prepayment health plan. Banks, investment houses, physicians, and other groups could apply to the Surgeon General for insurance on loans for medical centers, hospitals, clinics, doctors' offices, and other facilities. Mortgages could not exceed 5 million dollars and would have to be paid back within 25 years, with interest rates set at 5% or less. Similar measures were introduced in the previous session of Congress. This bill was referred to the Interstate and Foreign Commerce Committee.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

Loans to Nonprofit Health Associations

In H. R. 6950, Congressman Wolverton (R., N. J.) proposes authorization for an appropriation of 5 million dollars a year for the next two fiscal years and 10 million dollars a year for the next three succeeding fiscal years, or a total of 40 million dollars over a five year period for long-term, interest-bearing loans to assist voluntary nonprofit health service associations in obtaining facilities and equipment. To obtain a loan, the association would submit to the Surgeon General of the U. S. Public Health Service evidence of (1) control of the practice of medicine and dentistry solely by duly licensed members of the professions involved, (2) control of the general administration of the plan by a governing board, "a majority of whose members shall be persons who do not themselves furnish, or represent other persons that furnish health services," (3) satisfactory compensation to participating physicians and the governing board, (4) voluntary participation in the plan by beneficiary members and by physicians, and (5) agreement by the plan to render services in case of emergency to any resident of any community whether or not they are members of the plan.

The National Health Services Facilities Council of 14 members would formulate standards with the Surgeon General for making loans to eligible health service plans. The council would consist of 1 representative each, of the Department of Labor and the Department of Agriculture, and 12 members appointed for four year terms by the Surgeon General. Three would represent "operating non-profit prepaid medical service plans." Three would be representatives of bona fide national farm programs, and three would be representatives of bona fide national labor organizations, and three would be members of the medical, dental, and nursing professions. This bill was referred to the Interstate and Foreign Commerce Committee.

Deduction of Health Insurance Plans

Congressman Wolverton (R., N. J.) in H. R. 6952 would amend the Internal Revenue Code to permit the deduction of "certain payments for health insurance without regard to the 5 per centum limitation" placed on medical expenses above which deductions may be made from income in calculating income tax. There are a number of similar bills already before the 83rd Congress. This bill was referred to the Ways and Means Committee.

Social Security Extension

Congressman Curtis (R., Neb.) in H. R. 6863 would extend Old Age and Survivors Insurance to about 5 million more already retired aged persons. Mr. Curtis, chairman of the Subcommittee Investigating Social Security Programs, states that this bill represents his personal opinions on social security, not those of the administration. Coverage would also be extended to almost all occupations, including the medical profession, not now covered. The coverage provisions are virtually identical with the previously reported administration's H. R. 6812, introduced Aug. 3, 1953, by Congressman Daniel Reed, chairman of the Committee on Ways and Means. The Curtis bill would retain the present wage relation benefit provisions by (1) continuing the monthly payments up to the present maximum of \$85, (2) increasing the monthly benefits to \$45 for all those who are not now receiving that amount, (3) maintaining the contributory principle of the present law, and (4) continuing the present trust plan. The present limit of \$75 a month maximum earnings, for persons under social security, would be increased to a total of \$1,000 annually instead of being computed on a monthly basis. The bill also provides that payments to the social security fund would be discontinued when a retired worker reaches 66 years and has paid for 40 quarters of coverage. This bill was referred to the Ways and Means Committee.

Lengthening Presumption-of-Service-Connection Period for Arthritis

In H. R. 6867, Congressman Ayres (R., Ohio) proposes "to amend the veterans regulations to provide that arthritis developing a ten per centum or more degree of disability within three years after separation from active service shall be pre-

sumed to be service-connected." The present period is for one year. This bill was referred to the Committee on Veterans' Affairs.

Lengthening Presumption-of-Service-Connection Period for Active Tuberculosis, Multiple Sclerosis, and the Chronic Functional Psychoses

Congresswoman Rogers by H. R. 6931 would "amend veterans regulations to establish for persons who served in the Armed Forces during World War II a further presumption of service connection for multiple sclerosis and the chronic functional psychoses . . . and active pulmonary tuberculosis or all other types of active tuberculosis . . . developing a 10 per centum degree of disability or more within three years from the date of separation from active service." This bill is almost identical with H. R. 33 introduced by Mrs. Rogers in January, 1953, and previously reported. The bill was referred to Committee on Veterans' Affairs.

Treaties and Executive Agreements

Congressman Bow (R., Ohio) in H. J. 327 proposed an amendment to the Constitution invalidating any provision of any treaty or executive agreement that denies or abridges the rights guaranteed by the Constitution. Treaties would become effective as internal law within the United States "only through legislation which would be valid in the absence of treaty." This bill, identical with S. J. Res. 1, the Bricker Amendment, and several other measures previously reported, was referred to the Judiciary Committee.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 18, proposes the enactment of a licensing law for registered optometrists. H. 47, proposes the enactment of a premarital examination law that would require each party to a marriage to present a certificate from a duly licensed physician showing freedom from syphilis in a communicable stage. H. 73, proposes an appropriation to the state department of health for the establishment of a statewide preventive mental health program.

Kentucky

Bill Introduced.—S. 24, proposes the creation of a state medical education board and the establishment of a program thereunder granting loans and scholarships to medical students contracting to practice for a certain length of time in Kentucky after they have received their medical license.

Massachusetts

Bills Introduced.—H. 48, to amend the law relating to medical examination of minors, proposes that a physical examination by a registered physician or surgeon acting under the authority of the department of public health on the person of a minor who voluntarily submits thereto shall not constitute an assault or an assault and battery on such minor. H. 52, proposes to authorize the department of public health to prescribe and establish rules and regulations to control the transportation, packaging, distribution, production, and disposal of radioactive materials that may affect the public health or the health of persons exposed to radioactivity or ionizing radiation. H. 141, proposes to direct the University of Massachusetts to immediately establish, as a part of the university, schools of medicine and dentistry, the medical school to achieve and maintain standards of medical education prescribed by the American Medical Association for a grade A medical school. H. 255, proposes the creation of a board of registration of sanitarians and defines the word "sanitarian" as a person with a broad basic education in the physical, biological, and social sciences, supplemented by specialization in the field of sanitary sciences and technology, who is qualified to carry out instructional and inspectional duties and enforce the laws in the field of environmental sanitation. H. 481, proposes the creation of a board of registration of chiropractors and defines chiropractic as the science of locating and removing by hand adjustment only, interference with the transmission or expression of nerve force in the human body, by the correction of misalignment of subluxations of the vertebral column. It excludes operative surgery, prescription or use of drugs or medicines, or the practice of obstetrics, except that the x-ray and analytical instruments may be used solely for the purposes of examinations. H. 510, proposes to require the creation and establishment of a school of medicine to be located in the city of Boston or its vicinity to be under the management and control of the board of trustees of the University of Massachusetts. The medical school shall establish and maintain standards of admission, scholarship, and teaching, which shall be in accordance with standards approved by the Council on Medical Education and Hospitals of the American Medical Association. H. 546, proposes the creation of a special commission for the purpose of making an investigation and study relative to the training of medical laboratory technologists. H. 605, to amend the medical practice act, proposes to authorize applicants who fail to pass the examination given by the board to be reexamined twice

within the next two years. H. 606, to amend the law relating to physical therapists, proposes to require all registered physical therapists to renew their licenses annually. H. 607, proposes to set forth certain minimum standards of behavior to be observed by all doctors and other researchers at all times during experimentation, tests, and trials on human beings. Among other things, the proposal requires the express voluntary consent of the human subject to undergo medical or surgical experimentation, requires that a subject shall be given a thorough beforehand explanation of the project and of his right to withdraw from the experiment at any time and requires that the subject must have the legal capacity to give consent and be so situated as to be able to exercise free power of choice without the intervention of any element of force, fraud, deceit, duress, overreaching, secrecy concerning any and all details known to the experimenting doctor or researcher, or other ulterior form of constraint or coercion. The experiment to be performed must promise a recognizable likelihood that it will result in good for humanity, unprocureable by other means or methods of study, it shall be designed and based upon the knowable facts of medical art and science as to support a reasonable anticipation of resultant benefit to human beings, it shall be so conducted as to avoid all unnecessary physical and mental suffering and injury, it shall not be initiated or conducted at any stage of which there is reason to believe that death or disabling injury will possibly or probably occur. The degree of risk to the human experimental subject shall never exceed that determined by the humanitarian importance of the problem being studied. H. 608, proposes that no agency of the commonwealth or political subdivision thereof shall treat any public water supply with fluorine or any fluorine compound or make any water so treated available for general use in any hospital, school, or other institution, or transport, store, or hold in possession for such general use any fluorine or fluorine compound in any area contributory or contiguous to any public water supply. H. 641, proposes to direct the trustees of the University of Massachusetts to establish and maintain in metropolitan Boston a graduate school for instruction in the basic medical sciences, such school to achieve and maintain the standards of medical education prescribed by the American Medical Association for Grade A medical schools. H. 694, proposes to amend the law relating to reports of physicians and hospitals by providing that a physician or hospital officer who treats or visits a person addicted to the use of narcotics shall furnish forthwith to the department of public health the name and address of such person. H. 794 and H. 795, propose the enactment of a cash sickness compensation law. H. 945, proposes the creation of a Massachusetts memorial medical scholarship board to provide annual scholarships for the study of medicine and for the study of nursing. H. 1001, proposes the enactment of a disability benefits law. H. 1068, proposes the creation of a board of registration of dispensing opticians for the registration, examining, and licensing of persons desiring to practice as dispensing opticians. H. 1070, proposes to authorize the department of public health to establish and maintain an alcohol clinic in the city of Lawrence. H. 1184, proposes to direct the University of Massachusetts to immediately establish a school of medicine in the commonwealth. H. 1236, proposes the creation of a cash sickness compensation law. H. 1410, proposes to direct the trustees of the University of Massachusetts to construct and maintain a medical school affiliated with the University of Massachusetts to be located in or near Boston. H. 1423, proposes the establishment of a medical school by the trustees of the University of Massachusetts to be located in Boston or its vicinity. H. 1471, proposes the enactment of a sickness security act. H. 1489, proposes that whoever purchases or acquires a dog, cat, or bird to be used for experimentation of mutilation while alive shall keep a record and submit a report thereof to the commissioner of public safety and that such record shall be open to the inspection of the commissioner of public safety and all police officials. H. 1542, proposes that no person may be employed as a counselor or instructor in any recreational camp by any individual or organization unless such person has first undergone an examination by a qualified psychiatrist. H. 1766, to amend the medical practice act, proposes to require each physician to register his license annually. H. 1999, proposes the creation of a board of registration of chiropractors and defines chiropractic as the science of locating and adjusting by hand or by other means that may be recommended by chiropractic authority to increase efficiency, interference with transmission or expression of mental impulses (nerve forces) in the human body by correction of subluxations or misalignment of the vertebral column. X-ray and analytical instruments may be used for purposes of examination. It excludes the use of surgery. H. 2103, proposes to direct the trustees of the University of Massachusetts to establish and maintain one or more graduate schools for instruction in the basic medical sciences to be known as the University of Massachusetts Medical School, such school to achieve and maintain standards of medical education prescribed by the American Medical Association. H. 2138, proposes the enactment of a law establishing a system of compulsory nonindustrial accident and health insurance benefits. H. 2185, proposes that no person shall hold himself forth as a doctor unless he has received the degree of doctor in his field from a university, college, or school empowered to grant such degree and that all persons who wish to designate themselves as doctors shall affix immediately following their names the proper letters of academic usage pertinent to the degree which they hold. H. 2187, proposes that any hospital owned or operated by the commonwealth that gives treatment to patients afflicted with cerebral palsy shall procure sufficient facilities and provide adequate personnel to give such patients proper physical therapy treatment or such other treatment as it is deemed essential for their care. S. 20, to amend the law relating to the examination of school children, proposes that such children shall be separately and carefully tested and examined at least once each year in every school to ascertain defects in sight or hearing. S. 242, proposes the establishment in the department of education of a school of chiropody attached to the University of Massachusetts for the training of students in the field of foot care. S. 353, proposes the enactment of a cash sickness compensation act.

S. 457, to amend the law relating to physical therapy, proposes to define a registered physical therapist as a person registered under the act for the treatment of any bodily or mental condition of any person by the use of the physical, chemical, and other properties of heat, light, water, electricity, massage, and active and passive exercise.

Bill Enacted.—S. 243, has become Res. Ch. 1 of the Resolves of 1954. It provides for the continuance of a special commission established in 1951 to investigate the establishment of a state medical and dental school under the jurisdiction of the University of Massachusetts. This commission shall also consider, investigate, and study the establishment of a New England board of education, proposed compacts among the New England states authorizing cooperative planning in the field of medicine, dentistry, veterinary medicine, and technical, professional graduate training.

MEDICAL SOCIETY OF VIRGINIA

Seventeen physicians of Richmond and Manchester met on Dec. 15, 1820, to form the Medical Society of Virginia and the following month adopted a constitution. The preamble stated: "Considering that the science of medicine occupies a distinguished rank in the circle of the liberal arts and sciences, and that its advancement is intimately connected with the



happiness and prosperity of every well-regulated society: that the good people of this commonwealth have heretofore suffered great inconvenience and injury from an almost exclusive dependence on foreign institutions for instruction in the principles of this essential branch of knowledge: that the character and best interests of the state require that the evils of such dependence should, as far as possible, be removed, by the introduction of institutions of our own: and that an association having in view this object, long so highly prized and so anxiously expected by its liberal minded inhabitants, is now deemed practicable: a number of the members of the medical profession have formed themselves into a society. . . ." At the same session a resolution was adopted that provided "that no person holding in part or whole any patent medicines, or remedies for diseases, shall be eligible to a seat in this society; and any member who may hereafter become interested directly or indirectly, in any such patent, shall thereby absolutely forfeit his seat, and the word 'expelled' written opposite his name in the record book." Three years later, on Jan. 2, 1824, the society was incorporated—a rather futile gesture, since in November of that year its last meeting was held. Its demise was later attributed to "apathy and indifference which most unaccountably palsied the exertions of the profession." After 17 years the society, on Dec. 27, 1841, readopted the old constitution and began again.

Although its title implied statewide participation and despite the fact that some attempts at reorganization were made, for almost 10 years the society remained virtually a local Richmond organization, with some associate and nonresident members. Agitation against the control of the Richmond group was strengthened by the *Stethoscope*, the first Virginia medical journal, which focused attention on the need for a strong, unified front in working for medical legislation and called for repeal of the law that "taxed the profession of medicine, without protecting or even recognizing it, the enactment of laws for the suppressions of quackery, and the promotion of science, a registration act, a licentiate board, a proper coroner's system, and other measures of this character." A plan of reorganization was adopted in April, 1851. On April 27, 1852, the first annual meeting of the reorganized society was called. Resolutions were adopted favoring appointment by law of a board of medical examiners, elevation of standards of medical education, and support of those medical schools that would cooperate in carrying out the society's proposals for reform. As time went on, however, arguments over these matters grew to such proportions that little of the society's meeting time was devoted to scientific discussions, their place being usurped by attacks and counterattacks on medical teaching in Richmond, disputes over establishment of a society-owned journal, and even opposition to a previously adopted resolution that had requested a legislative bill "requiring that the venders of all secret nostrums be required to put on each package of their medicines a printed label, in plain English, stating the ingredients of which it is composed." Interest flagged, and at the annual meeting in Richmond in 1855, out of a membership of 450, only 20 persons (6 from outside the city) attended. In 1859 the society held its last meeting, its death being caused, as Dr. Wyndham B. Blanton points out, "not by the approaching war but by insistence upon a resolution advocating a board of medical examiners."

Eleven years later, at the call of the medical societies of Abingdon, Lynchburg, and Richmond, a convention of 147 physicians met at the Medical College of Virginia in Richmond to organize again the Medical Society of Virginia, the present society, which was incorporated Jan. 14, 1871. The group urged "our medical brethren in the several towns and cities of Virginia to convene and organize local societies auxiliary to the Medical Society of Virginia" and opposed "the low-fee and eleemosynary system of education at present in vogue in some of the medical schools of the country."

Over the years the society fought for various legislative measures. An approximately 30-year war for a board of medical examiners, culminated in passage of the acts of 1883-1884. Dr. Blanton discusses the acts in the trilogy "Medicine in Virginia," which, prepared under the direction of the Medical Society of Virginia, deals with the state's medical history from 1607 to 1900.

In the current century, membership in the society has risen to 2,368 in 46 component societies. Its headquarters at 1105 W. Franklin St., Richmond, accommodate not only its own offices but those of the Virginia Academy of General Practice and the *Virginia Medical Monthly*, the society's official publication. Established in April, 1874, as the *Virginia Medical Monthly*, its name was changed to the *Virginia Medical Semi-Monthly* in April, 1896, but reverted to its first and present title in January, 1918, when it was purchased by the society.

On Jan. 5 a conference on problems of the medically indigent, sponsored in Richmond by the society and the Virginia Council on Health and Medical Care, was attended by officers of component medical societies, members of the county boards of supervisors, state civic groups, the Virginia Hospital Association, and members of the state legislature. On Nov. 1-3 the society will join with the Medical Society of the District of Columbia in "The First Interstate Scientific Assembly of the Medical Society of the District of Columbia and the Medical Society of Virginia." The annual meeting of the society will be held in Roanoke, Oct. 18-21. Its officers are Dr. Vincent W. Archer, Charlottesville, president; Dr. Carrington Williams, Richmond, president-elect; Drs. David S. Garner, Frank E. Tappan, and A. Tyree Finch, Farmville, vice-presidents; and Robert I. Howard, Richmond, executive secretary-treasurer.

MEDICAL NEWS

DISTRICT OF COLUMBIA

Seminar on Hepatic Disease.—"Diseases of the Liver and Biliary Tract," the third Midwinter Seminar of the Medical Society of the District of Columbia, will be held Feb. 16-18 at 8 p. m. in the medical society building, 1718 M St., N. W., Washington, D. C. The guest moderator will be Dr. Franklin M. Hanger, professor of medicine, Columbia University College of Physicians and Surgeons, New York. The Tuesday evening program on jaundice will include discussions on bile formation, infectious hepatitis, differential diagnosis of jaundice, and the presentation of case problems. Case problems will also be presented at the Wednesday program on portal hypertension, which will include the following papers:

- Portal Circulation; Mechanisms of Ascites, Major Edward J. Jahnke Jr., Washington, D. C.
- Hematemesis in Portal Cirrhosis, Lt. Col. Eddy D. Palmer, Washington, D. C.
- Differential Diagnosis in Ascites, Franklin M. Hanger, New York.

On Thursday evening the following symposium on therapy will be presented:

- Outline of Therapy in Diseases of the Liver and Biliary System, Franklin M. Hanger, New York.
- Medical Therapy in Hepatic Disease, Gerald B. Phillips, Bethesda, Md.
- Medical Therapy in Biliary Tract Disease, Thomas S. Sappington, Washington, D. C.
- Treatment of Hemolytic Jaundice, Charles E. Rath, Washington, D. C.
- Indications for Gallbladder Surgery, William S. McCune, Washington, D. C.
- Indications for Portacaval and Other Shunts, Charles A. Hufnagel, Washington, D. C.

Society News.—The District of Columbia Society for Crippled Children is sponsoring lectures at the society headquarters, 1767 Massachusetts Ave., N. W. On Feb. 16, 3:30-4:30 p. m., "Intrauterine and Neonatal Infections and Brain Damage" will be presented by Dr. Mario Mollari, professor of bacteriology, Georgetown University School of Medicine, Washington, D. C. On Feb. 23 Dr. Morris I. Michael, instructor of medicine, Georgetown University School of Medicine, will discuss "Metabolic Disturbances and Brain Damage."

ILLINOIS

Appointments by the Governor.—Gov. William G. Stratton has named the following physicians to serve in public health agencies: Drs. Theodore R. Van Dellen, Chicago, and Harlan A. English, Danville (Hospital Licensing Board); Drs. Fred H. Decker, Peoria, Gilbert H. Edwards, Pinckneyville, and James P. Grier, Evanston (Advisory Board to the Bureau of Cancer Control); and Dr. Irving H. Neece, Decatur (Advisory Hospital Council).

Narcotic Violation.—Dr. George G. Moore, 209 W. Fifth St., Benton, pleaded guilty in the U. S. District Court at Benton to a violation of the federal narcotic law. On Nov. 19, 1953, sentence was suspended, and he was placed on probation for three years and was fined \$750.

Chicago

Robins Memorial Meeting.—The Chicago Medical Society and the Chicago Pediatric Society will assemble for a joint session, Feb. 16, 8 p. m., at the Nurses' Home, Children's Memorial Hospital, 707 Fullerton Ave., for the Dr. Louis S. Robins memorial meeting. Dr. Sidney O. Levinson has been invited to present "His Early Years" and Drs. William Saphir and Otto Saphir, "His Illness." "Myasthenia Gravis" will be discussed by the guest speaker, Dr. Lee McKendree Eaton, professor of neuropsychiatry, Mayo Foundation, Rochester, Minn. Telephone messages may be received at Diversey 8-4040.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Society News.—The Chicago Diabetes Association and Service Unit announces the opening of its new office, Room 909, Mallers Bldg., 5 S. Wabash Ave., Chicago 3; telephone ANdover 3-1861. Visitors are welcome Monday through Friday from 10:30 a. m. to 3:30 p. m. —The Institute of Medicine of Chicago announces the election of the following officers for 1954: president, Dr. Willis J. Potts; vice-president, Dr. Don C. Sutton; secretary, Dr. George H. Coleman; and treasurer, Dr. E. Lee Strohl. —On Feb. 18, 8 p. m., the Jackson Park branch of the Chicago Medical Society in cooperation with the Chicago Heart Association will present "The Use of Anticoagulant Drugs" by Dr. Emmet B. Bay, University of Chicago School of Medicine. Discussions on the program, which will be held at Billings Memorial Hospital, 950 E. 59th St., are Dr. Norman B. Roberg of the University of Illinois College of Medicine and Dr. George F. O'Brien of the Stritch School of Medicine of Loyola University. Reservations for the dinner, 7 p. m., must be made by noon, Feb. 18, through Dr. Andrew J. Brislen (Midway 3-0400). —At 9:30 p. m., Feb. 18, the West Side branch of the Chicago Medical Society in cooperation with the Chicago Heart Association will hold a round-table conference on acute coronary disease at St. Anne's Hospital, 4950 W. Thomas St. (EStebrook 8-7100). "Pathological Aspects" will be presented by Dr. William B. Wartman, "Diagnosis" by Dr. Gilbert H. Marquardt, and "Treatment" by Dr. Lyle A. Baker, who will also serve as moderator. The panel members are all from Northwestern University Medical School. All physicians are invited to both of these meetings.

INDIANA

Medical Civic Dinner.—The Vanderburgh County Medical Society announces that Frederick C. Othman, Washington, D. C., Scripps-Howard newspaper columnist, will present "Confusion on the Potomac" at the annual Medical Civic Dinner, Hotel McCurdy, Evansville, Feb. 18.

MARYLAND

Society News.—Dr. Kenneth K. Keown, associate professor of anesthesiology, Hahnemann Medical College and Hospital of Philadelphia, will present an illustrated lecture on hypothermia at the meeting of the Baltimore City Medical Society, Feb. 19, 8:30 p. m., in Osler Hall, 1211 Cathedral St.

Lecture on Carcinoma of the Cervix.—Dr. Isadore Lampe, professor of roentgenology, University of Michigan Medical School, Ann Arbor, will discuss "Radiation Therapy of Carcinoma of the Cervix" at a joint meeting of the Radiological Section of the Medical and Chirurgical Faculty of the State of Maryland and the Obstetrical and Gynecological Society of Maryland, Feb. 16 at the Sheraton Belvedere Hotel, Baltimore. A roentgenogram reading session, 5:30 p. m., will precede dinner, which will be followed by the scientific session at 8:30. All who are interested are invited to attend the film reading session and the formal lecture.

MASSACHUSETTS

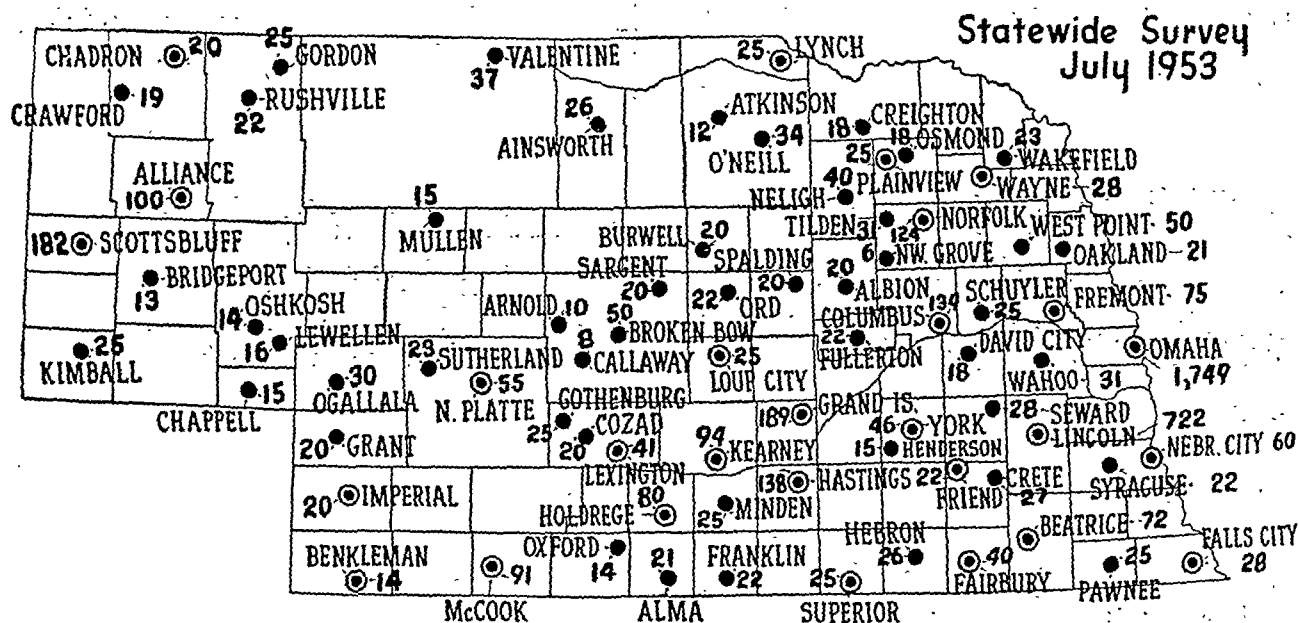
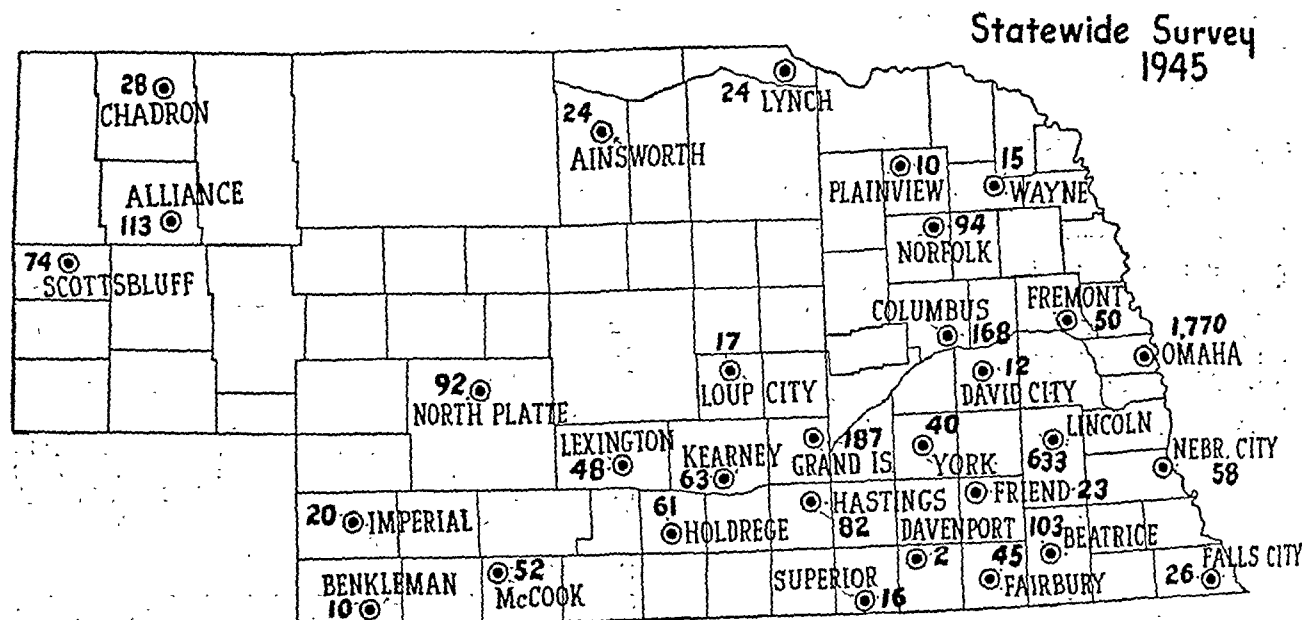
House Officers Sponsor Lecture.—The House Officers' Association, New England Center Hospital, Boston, announces that on Feb. 19 at 7 p. m. Dr. Thomas P. Almy, New York, will discuss "Experimental Evidence on the Nature of Cardiospasm" in the Stearns Auditorium of New England Center Hospital. All interested persons are invited.

Radioactive Isotopes.—The annual Tufts Medical Alumni lecture will be given at the Tufts College Medical School, Boston, Feb. 16, 11 a. m. Dr. Patrick J. Fitzgerald, professor of pathology, State University of New York College of Medicine at New York City, Brooklyn, will discuss "Radioactive Isotopes in Pathology." Physicians and students are invited.

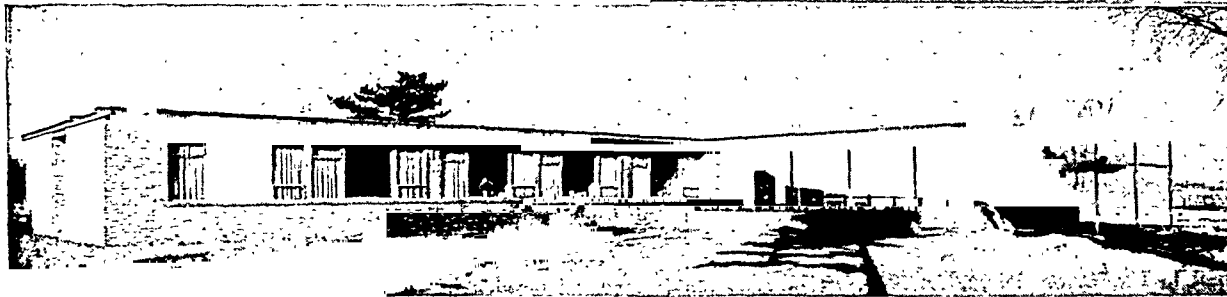
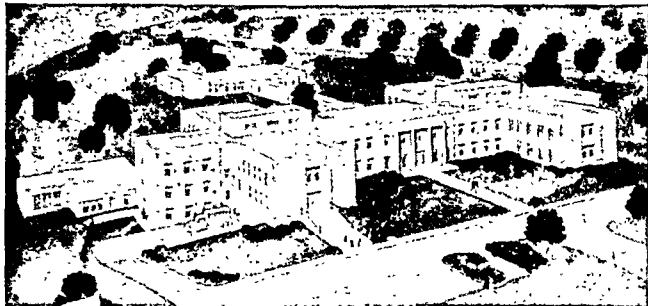
NEBRASKA

Nebraska Hospitals Built with Hill-Burton Aid.—The Nebraska State Department of Health in cooperation with the Nebraska State Medical Society, the Nebraska Hospital Association, and the University of Nebraska made a state-wide survey in 1945 of its acceptable beds in general hospitals. This survey formed a basis for the initial state plan developed under the Hospital Construction and Survey Act (Hill-Burton program), which was approved by the U. S. Public Health Service in January, 1948. Then in 1953 after a period of intensive construction work, the state department of health completed another hospital survey

The total cost of all general hospital and allied construction completed or under contract as of January, 1954 is estimated to be 18 million dollars, and of this the Nebraska State Agency has allocated federal funds in excess of \$5,300,000. The estimated cost of similar projects definitely programed, but not yet under contract, is in excess of 11 million dollars, and of this about 5 million dollars in contracts will be let during the current year. The estimated cost of projects now developing at the local level and having a reasonable chance of success is 2 million dollars. Some of the hospitals aided by the Hill-Burton program are shown on the opposite page.



trade area population of about 5,000. It has a maximum capacity of 30 adults together with 10 bassinets. The construction costs were \$275,000, the equipment \$45,000, and the architect's fees and miscellaneous costs \$17,000. The Community Memorial Hospital at Ogallala in Keith County, also constructed under the Hill-Burton program, received its first patient in September, 1952. The total service area population of this community is between 5,000 and 6,000. The hospital has a capacity for 30 adults and 10 bassinets. All patient rooms have semiprivate or private accommodations. The construction costs of this hospital were \$367,000, the equipment \$52,000 and the architect's fees and miscellaneous costs \$22,000. The Kearney County Community Hospital at Minden, which is expected to be completed in April, 1954, will provide accommodations for 25 adults and 8 newborn infants. The service area population of this community is about 4,500. The patient



Reading from top and left to right are the Nebraska Psychiatric Institute, Omaha; Immanuel School of Nursing, Omaha; County Community Hospital, Minden; Community Memorial Hospital, Ogallala; Memorial Hospital, Schuyler.

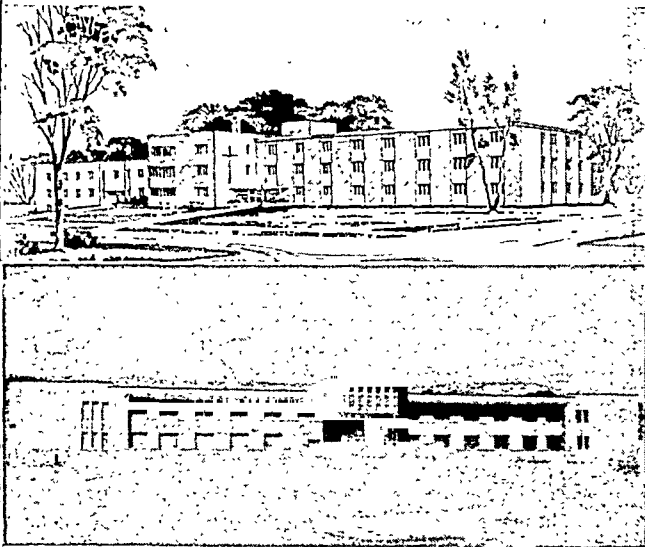
accommodations are semiprivate in design, and all rooms have toilet and lavatory. The construction costs are estimated to be \$290,000, the equipment \$40,500, and the architect's fees and miscellaneous costs \$17,500. The Immanuel Deaconess Institute of Nursing at Omaha is being constructed under the Hill-Burton program and is expected to be completed in September, 1954. This major addition will more than double the capacity of the present school of nursing and provide accommodations for 100 students, class rooms, and an auditorium. The estimated construction costs are \$458,000, the equipment costs \$65,000, and the architect's fees and miscellaneous costs \$28,000.

The Hospital Survey and Construction Act (Hill-Burton program) provided funds approximating 30% of the total costs of such projects completed on July 1, 1953. While federal funds have supported only part of hospital construction in Nebraska during this period, the Hill-Burton program has stimulated hospital construction undertaken with local resources.

NEW YORK

Dr. Ravdin to Deliver Roswell Park Lecture.—On Feb. 18 the Buffalo Surgical Society will sponsor the Roswell Park lecture by Dr. Isidor S. Ravdin, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia. Dr. Ravdin will be awarded the society's gold medal given in honor of Dr. Roswell Park, professor of surgery, University of Buffalo, 1883-1914.

Society News.—A course on resuscitation of the newborn will be given for residents and interns under the auspices of the Child Health and Welfare Committee of the Medical Society of the County of Kings Feb. 15, 1 p. m., in the auditorium of the "E" Building, Kings County Hospital, Clarkson and New York Avenues, Brooklyn. Members of the profession are



invited to hear Drs. Peter Gruenwald, assistant professor, obstetrics and gynecology (pathology), Richard L. Day, professor of pediatrics, and Merel H. Harmel, professor and executive officer, department of anesthesiology, State University of New York College of Medicine at New York City, Brooklyn.—"Heart Disease and Pregnancy" will be discussed at the meeting of the Medical Society of the County of Kings in McNaughton Auditorium, Brooklyn, Feb. 16. "Immediate and Remote Prognosis" will be presented by Leon C. Chesley, Ph.D., associate professor, State University of New York College of Medicine at New York City, Brooklyn. Dr. Charles A. Gordon, Brooklyn, chairman, Committee on Maternal Welfare, will have as his topic "Brooklyn 1937-1952," and the summary will be given by Dr. Louis M. Hellman, Brooklyn.

New York City

Tumor Clinic.—Dr. George T. Pack will discuss "Tumors of the Liver" at the Tumor Clinic Conference at Harlem Hospital Feb. 17 at 10:45 a. m.

Harvey Lecture.—Britton Chance, Ph.D., professor of medical physics, the Eldridge Reeve Johnson Foundation for Medical Physics, University of Pennsylvania, Philadelphia, will deliver the sixth Harvey lecture of the 1953-1954 series at the New York Academy of Medicine, Feb. 18. He will discuss "Enzymes in Action in Living Cells."

Dermatologic Lecture.—Dr. Nathan Sobel, associate professor of clinical dermatology and syphilology, Post-Graduate Medical School of the New York University-Bellevue Medical Center, will lecture on "Skin Diseases with Accompanying Oral Mucous Membrane Lesions" at the monthly conference of the New York Institute of Clinical Oral Pathology at the New York Academy of Medicine, Feb. 15, 8:30 p. m.

Gifts to University.—New York University announces receipt of a gift of \$1,268,941 from the Samuel H. Kress Foundation toward the construction of the \$8,500,000 medical science building scheduled for completion next spring at the New York University-Bellevue Medical Center. The new gift from the Kress Foundation brings to \$3,882,000 the amount it has contributed to the center, about half for current support of the Post-Graduate Medical School of the New York University-Bellevue Medical Center and half for capital purposes in the construction of new facilities. The new building, a key structure in the \$29,500,000 medical center, will provide facilities for the Post-Graduate School of Medicine and the College of Medicine, research laboratories, offices, library, and student facilities. The university also announced receipt of \$105,000 from Mr. Winthrop Rockefeller, Little Rock, Ark., former chairman of the board of trustees of New York University-Bellevue Medical Center, who was recently elected a permanent honorary trustee in recognition of the time and service which, for many years, he has devoted toward the growth and development of the center. University Hospital will receive \$26,250 of the gift for medical, surgical, dietary, and housekeeping equipment. The balance will be applied toward construction costs of the medical science building.

OHIO

Special Train to San Francisco.—The Ohio State Medical Association has arranged for a special train to the American Medical Association annual meeting in San Francisco, June 21-25. The all-room, air-conditioned train will leave Chicago June 12, reaching San Francisco June 20. Entertainment and tours have been arranged for stopovers in Salt Lake City (about 1 day), Los Angeles (2 days), and Yosemite National Park (2 days). On the return trip stops will be made at Portland, Ore.; three days and nights will be spent at Glacier National Park; and the party will arrive in Chicago July 3. The cost of the trip (about \$500 per person) includes all traveling expenses except meals and sightseeing at Los Angeles and San Francisco, one meal in Portland, and round-trip rail and Pullman fare between home city and Chicago. A booklet concerning the trip, will be mailed, on request to Mr. C. S. Nelson, secretary, 79 E. State St., Columbus 15.

OKLAHOMA

MacKenzie Memorial.—Dr. William J. Bryan Jr., Tulsa, has announced plans to have an oil portrait of the late Dr. Ian MacKenzie painted and hung at Hillcrest Medical Center as a permanent memorial. Contributions may be sent to the Tulsa County Medical Society offices, B-9 Medical Arts Building, Tulsa. Checks should be made payable to Mary Russell, treasurer.

General Practitioners Meet in Tulsa.—The annual meeting of the Oklahoma Academy of General Practice will be held Feb. 15-16 at the Tulsa Hotel in Tulsa. Out-of-state speakers and their first presentations include:

- William F. Guerriero, Dallas, Texas, Carcinoma of the Cervix.
- Horace L. Hodes, New York, Treatment of the Severe Forms of Polymyositis, and the Present Status of Measures Aimed at the Prevention of the Disease.
- Manuel E. Lichtenstein, Chicago, Clinical Significance of the Position and Station of the Appendix.
- Perrin H. Long, Brooklyn, Uses and Abuses of the Antibiotics.
- Carlo S. Scuderi, Chicago, Backache, from the Standpoint of a General Practitioner—Diagnosis and Treatment.

PENNSYLVANIA

University News.—The University of Pennsylvania announces establishment in the School of Veterinary Medicine of a department of preventive medicine and hygiene, primarily for the conduct of research on infectious diseases of animals, and to intensify research into animal diseases that may be communicated to man. Headquarters from which the department will function will be based on New Bolton Center, the university's 225-acre center in Chester county, near Kennett Square. The University is completing a laboratory building that will house the new department. Raymond Fagan, D.V.M., senior scientist in the communicable disease center of the U. S. Public Health Service, Kansas City, Kan., has been appointed chairman of the department, with the faculty status of associate professor of preventive medicine and hygiene in the veterinary school. In his most recent work at Kansas City Field Station Communicable Disease Center, Dr. Fagan has been stressing the epidemiology of animal-born diseases, such as rabies, leptospirosis, brucellosis, and psittacosis. He is an associate editor of the *Journal of the American Veterinary Medical Association*.

Philadelphia

Forum on Rehabilitation.—The Philadelphia County Medical Society, Health and Welfare Council, and the Hospital Council of Philadelphia will sponsor the forum "Rehabilitation and Medical Practice" at the Medical Society Auditorium, Feb. 18, 4-5:30 p. m.

Personal.—Dr. Robert D. Dripps, professor of anesthesiology in surgery, University of Pennsylvania School of Medicine, has been appointed senior civilian consultant in anesthesia to the Surgeon General of the Army. —Dr. William S. Blakemore, an associate in surgery in the University of Pennsylvania School of Medicine, left Philadelphia in September for Stockholm, Sweden, to spend a year in special investigative work on surgery of the heart and lungs. Dr. Blakemore also is the beneficiary this year of the I. S. Ravdin Traveling Fellowship, which was awarded him on the basis of skill in surgical practice and research. —Dr. Daniel J. McCarthy, one of the founders of the National Tuberculosis Association and one of the four remaining original staff members of the Henry Phipps Institute in Philadelphia, has been given the Distinguished Service Cross by the Palm Beach County (Fla.) Tuberculosis and Health Association in recognition of his 50 years of service to the voluntary tuberculosis movement. From 1903 to 1906 Dr. McCarthy was a director of the Pennsylvania Society for the Prevention of Tuberculosis, now the Pennsylvania Tuberculosis and Health Society.

TEXAS

Obstetricians and Gynecologists Meet in Waco.—The Texas Association of Obstetricians and Gynecologists will hold its annual meeting in Waco Feb. 19-20 at the Roosevelt Hotel. Practicing physicians are invited. Dr. Carl T. Javert, associate professor of obstetrics and gynecology, Cornell University Medical College, New York, will speak on (1) the pathology of spontaneous abortions and (2) pelvic lymphatics and gynecologic disease. The annual banquet will be on Friday.

Muscular Dystrophy Grant.—The National Muscular Dystrophy Research Foundation has made a grant of \$5,000 to the Southwest Foundation for Research and Education in San Antonio, for use in a project, entitled "Individual Metabolic Patterns for Families Having a History of Muscular Dystrophy." The foundation is cooperating in the selection of families who are subjects of the studies. Progressive changes in the individual metabolism of each subject will be compared both within and between families for a three year period. Those wishing to make application for moderate grants-in-aid should apply to the Executive Secretaries, National Muscular Dystrophy Research Foundation, Inc., 709 Main St., Liberty. Dr. Albert L. Delaney, Liberty, is president of the foundation, and Dr. Derek E. Denny-Brown, Harvard Medical School, Boston, is chairman of the foundation's research advisory board, which made the grant.

GENERAL

Catastrophic Fatalities.—According to the Metropolitan Life Insurance Company, catastrophes (accidents killing five or more persons) took about 1,800 lives in the United States in 1953, the highest annual toll since 1947. A major factor in the rise was the unusually heavy loss of life in tornadoes, 13 tornadoes (4 in well populated areas) having killed more than 450 persons. Other tragedies, each claiming more than 25 lives, included aircraft crashes (5 with a total of 193 deaths) and explosions/fires (3 with a total of 105 victims).

American Journal of Gastroenterology.—The National Gastroenterological Association announces that the name of its official publication, established in 1934, has been changed from *The Review of Gastroenterology* to *The American Journal of Gastroenterology*, effective with the January, 1954, issue. The publication will continue to be edited by Dr. Samuel Weiss and a board consisting of Drs. Milton J. Matzner, Brooklyn, James T. Nix, New Orleans, and Michael W. Shutkin, Milwaukee. The association and the journal also announce the removal of their offices from 1819 Broadway to 33 W. 60th St., New York 23 (phone: Circle 6-4345).

Examinations for Orthoptic Technicians.—The annual examination of orthoptic technicians by the American Orthoptic Council will be conducted in July and September. The written examination, nonassembled, will take place July 22 in certain assigned cities and offices. The oral and practical examinations will be on Sept. 18 in New York, preceding the meeting of the American Academy of Ophthalmology and Otolaryngology. Application for examination must be received before June 1 by the office of the Secretary of the American Orthoptic Council, Dr. Frank D. Costenbader, 1605 22nd St. N.W., Washington 8, D. C. and must be accompanied by the examination fee of \$30.

Prizes for Dissertations on Epilepsy.—The American League Against Epilepsy announces the Jerry Price memorial prizes, totaling \$1,000, contributed jointly by Mr. and Mrs. Fred Markham and the league: first prize, \$500; second prize, \$200; and third prize, \$100; with book prizes for other contestants and possible publication of one or more contributions in the journal *Epilepsia*. The contest is open to the students of any approved medical school in the United States or Canada. Any one of the many aspects of epilepsy may be covered. Essays should be original, typed double-spaced, and preferably not more than 5,000 words. Contributions should be mailed before Aug. 1, to Dr. Jerome K. Merlis, Secretary, American League Against Epilepsy, 150 S. Huntington Ave., Boston 30.

Teaching Home Nursing Via TV.—Tests to determine the effectiveness of television for teaching home nursing are being carried out in Houston, Texas, and Oklahoma City during February and March. Three groups of 200 women each will be used in the test: 1. Students in Oklahoma City will form the control group, taking the standard home nursing course in classrooms only. 2. In Houston, one group will receive all instruction via television over the University of Houston educational TV station KUHT. 3. A second group will watch the TV lesson once a week and then receive supplemental instruction in neighborhood meetings. The three groups will be tested before and after the course, and results will be evaluated to determine the relative effectiveness of the three methods of instruction. The American Council on Education has made a grant to pay for kinescoping the programs.

Fellowships in Biometry and Epidemiology.—The American Cancer Society has established at the Yale University Graduate School of Medicine, New Haven, predoctoral and postdoctoral fellowships in biometry and epidemiology to promote the knowledge of statistical methods. Candidates who express intention of following a career in a discipline applicable to (1) the study of growth, typical or malignant, (2) the study of the epidemiology of cancer and other chronic diseases, or (3) clinical research in cancer will be favored. Fellows will be expected to carry out research in one of these fields. Applicants

for predoctoral fellowships must have the degree of bachelor of arts or bachelor of science and a knowledge of biology, chemistry, mathematics, and physics. They are expected to enter the graduate school as candidates for the doctor of philosophy degree, and they will be given training in one or more fields of biology, as well as statistics. The fellowships, awarded for three years, may be terminated at any time if the candidate fails to meet the standards of the university. Annual stipends will be \$2,000. Additional funds may be available for students with dependents.

The postdoctoral fellowships are intended for young men and women embarking on an investigative career and also for more mature investigators desiring to extend their fields of competence. Candidates must be citizens of the United States who possess the degree of doctor of medicine, doctor of philosophy, or doctor of science. Fellowships, awarded for periods of one year, may be renewed for two additional years. The stipends will range from \$3,000 to \$4,500, depending on individual circumstances. For information, write to Prof. E. Cuyler Hammond, Director of Graduate Studies in Biometry, 51 Hillhouse Ave., Yale University, New Haven. Application blanks for predoctoral fellowships may be obtained from the Dean of the Graduate School, Yale University, New Haven. All applications for both types of fellowships should be mailed by Feb. 28.

Society News.—Newly elected officers of the Western Surgical Association include: Dr. Herbert H. Davis, Omaha, president; Dr. Michael L. Mason, Chicago, secretary; and Dr. Howard E. Snyder, Winfield, Kan., treasurer. —Officers of the American Society of Ophthalmologic and Otolaryngologic Allergy include Dr. Albert D. Ruedemann, Detroit, president; Dr. F. Lambert McGannon, Lakewood, Ohio, president-elect; and Dr. Michael H. Barone, Buffalo, secretary-treasurer. —At the annual meeting of the board of commissioners of the Joint Commission on Accreditation of Hospitals, officers elected included: Dr. Newell W. Philpott, Montreal, Canada, chairman; Dr. LeRoy H. Sloan, Chicago, vice-chairman; Stuart K. Hummel, Milwaukee, treasurer; and Dr. Edwin L. Crosby, Chicago, secretary. —Dr. Henry R. Viets, Boston, was reelected to the chairmanship of the medical board of the Myasthenia Gravis Foundation, Inc. at its recent annual meeting. Dr. George D. Gammon, Philadelphia, was elected vice-chairman, and Dr. Robert S. Schwab, Boston, secretary. —At the annual meeting of the American Roentgen Ray Society in Cincinnati, the following officers were elected: president-elect, Dr. Joshua C. Dickinson, Tampa, Fla.; secretary, Dr. Barton R. Young, Philadelphia, (reelected); and treasurer, Dr. Wendell G. Scott, St. Louis, (reelected). The president is Dr. Harry M. Weber, Rochester, Minn. —At its annual meeting in Louisville, the American Academy of Tropical Medicine elected the following officers: president, Brig. Gen. George R. Callender, U. S. Army, retired, Washington, D. C.; vice-president, Capt. James J. Saper, U. S. N., Washington, D. C.; secretary, Dr. E. Harold Hinman, San Juan, Puerto Rico; treasurer, Justin M. Andrews, Sc.D., Washington, D. C.; and councillor (for a five year term), Quentin M. Geiman, Ph.D., Boston. —The American Federation for Clinical Research announces that Feb. 15 is the abstract deadline for papers to be presented at the national meeting, Atlantic City, N. J., May 2. Abstracts, not exceeding 250 words and postmarked not later than Feb. 15, should be submitted in triplicate to the national secretary, Dr. Lawrence E. Hinkle Jr., 525 E. 68th St., Room F-611, New York.

LATIN AMERICA

Congress of Otorhinolaryngology and Bronchoesophagology.—The fourth Pan American Congress of Otorhinolaryngology and Bronchoesophagology will be held in Mexico, D. F., from Feb. 28 to March 4 under the sponsorship of the government of the republic of Mexico and the Mexican Society of Otorhinolaryngology and Bronchoesophagology. Round tables have been scheduled on tumors of the esophagus, teaching of otorhinolaryngology and bronchoesophagology, and evaluation of the hypoacusias. Topics for discussion include endocranial tumors, vertiginous syndromes, occupational deafness, nasal allergy, bilateral paralysis of the larynx, bronchial tumors, and esophageal varices.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1954 Annual Meeting, San Francisco, June 21-25.

1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Brown Hotel, Louisville, Ky., Feb. 24-25. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Baker Hotel, Dallas, Texas, Mar. 4-6. Mrs. Arline Hibbard, 535 N. Dearborn St., Chicago 10, Secretary.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, Feb. 25-27. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Hotel Galvez, Galveston, Texas, April 7-9. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, Houston, Texas, April 8-10. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 6-8. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Roney Plaza Hotel, Miami Beach, Fla., April 5-10. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Commodore, New York, March 11-13. Dr. Marion F. Langer, Room 210, 303 Lexington Ave., New York 16, Executive Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Ambassador Hotel, Atlantic City, N. J., April 10-16. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, The Homestead, Hot Springs, Va., March 14-16. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

CENTRAL SURGICAL ASSOCIATION, Statler Hotel, Detroit, Feb. 18-20. Dr. Robert M. Zollinger, University Hospital, Columbus 10, Ohio, Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 2-5. Dr. Maurice M. Hoeltgen, 86 East Randolph St., Chicago, Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 15-18. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN SECTION, AMERICAN CONGRESS OF PHYSICAL MEDICINE, Newark, N. J., April 10. Dr. H. L. Rudolph, 400 North Fifth St., Reading, Pa., Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

ISTHMIAN CANAL ZONE, MEDICAL ASSOCIATION OF THE, El Panama Hotel, Panama City, R. P., March 24-26. Dr. I. Robert Berger, Box "A," Balboa Heights, Canal Zone.

MICHIGAN CLINICAL INSTITUTE, Sheraton-Cadillac Hotel, Detroit, March 10-12. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Mich., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, April 4-7. Dr. E. Royce Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CONFERENCE ON CARE OF THE LONG-TERM PATIENT, Edgewater Beach Hotel, Chicago, March 18-20. Dr. Dean W. Roberts, 615 N. Wolfe St., Baltimore 5, Director.

NATIONAL CONFERENCE ON TRICHINOSIS, A. M. A. Headquarters, Chicago, March 1. Dr. S. E. Gould, Wayne County General Hospital, Eloise, Mich., Chairman.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, Jefferson Hotel, St. Louis, March 10-12. Dr. F. M. Foote, 1790 Broadway, New York 19, Executive Director.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:
TOPEKA, KANS., March 19. Dr. William C. Menninger, 3617 West 6th Ave., Topeka, Kansas, Governor.

RICHMOND, VA., Feb. 25. Dr. Charles M. Caravati, 807 West Franklin St., Richmond 20, Va., Governor.

SOUTHERN CALIFORNIA, Riverside, Feb. 13-14. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

FRENCH LICK SPRINGS, Indiana, French Lick Springs Hotel, March 15-17.

Dr. Carl H. McCaskey, 20 N. Meridian St., Indianapolis 4, Chairman.

MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.

OMAHA, NEB., Hotel Fontenelle, March 1-4. Dr. Earl A. Connolly, 107 South 17th St., Omaha, Chairman.

RENO, NEV., Riverside Hotel, Feb. 25-26. Dr. Kenneth F. Maclean, 120 N. Virginia St., Reno, Nev., Chairman.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacLinnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Tutwiler Hotel, Birmingham, Ala., March 8-11. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta, Ga., Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Del Monte Lodge, Pebble Beach, Calif., March 7-8. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ont., Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Tisiologia, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirmot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitaire d O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6^e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Caccuri, Director, Institute of Industrial Medicine Polichinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentine, April 21-28, 1954. Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentine.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 14-18, 1954. For information write: Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de Mexico, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida, Cuauhtémoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12^e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geoffroy, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8^o andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigaderio Luiz Antonio 651, Sao Paulo, Brazil.

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro, Medico, Caracas, Venezuela, Secretary-General.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Medellin, Columbia, South America, Feb. 15-20, 1954. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, N. Y., U. S. A., Executive Director.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8^o andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8^o andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY, Mexico, D.F., Mexico, Feb. 28-March 4, 1954. Dr. Maximo Garcia Castañeda, Humboldt 17, Mexico 1, D.F., Mexico, Secretary-General.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayail, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lastmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various Centers, July 16. Final date for filing applications in Jan. 16. Sec., Dr. Curtiss B. Hickox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written*. Various centers, Sept. 2. *Oral*. Ann Arbor, Oct. 15-18. To be eligible candidates must have completed thirty-six months of training by October 1. Final date for filing application is May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Chicago, April 1-3 (candidates in the midwest). Los Angeles, June 15-17 (candidates west of the Rocky Mountains and west coast). The closing date for acceptance of applications for Chicago and Los Angeles was Feb. 1. New York, Sept. 22-24 (candidates on the east coast). The closing date for acceptance of applications will be April 1. *Written*. Oct. 18. Final date for acceptance of applications will be May 1. *Subspecialties*. *Cardiovascular Disease*. Chicago, April 1. *Gastroenterology*. Chicago, April 2-3. The closing date for acceptance of applications for the subspecialties was Jan. 15. Exec. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May or June. Final date for filing application was Jan. 15. Sec., Dr. Leonard T. Furlow, 600 S. Kingshighway, St. Louis 10.

AMERICAN BOARD OF NEUROLOGY AND PSYCHIATRY: *Psychiatry and Neurology*. Chicago, April 29-30. Final date for filing application was Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination* (Part I) and review of case histories for all candidates will be held in various cities of the United States, Canada, and military centers outside the continental United States on Feb. 5. Case abstracts to be sent by the candidate to the Secretary are now due. *Part II*. Chicago, May 10-17. Final date for filing application is April 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical examinations, 1954*. San Francisco, June 25-29; New York City, Dec. 5-9. Final date for filing applications was July 1, 1953. *Written, 1955*. Various cities, Jan. 24-25. Final date for filing application is July 1, 1954. *Practical examinations, 1955*. Philadelphia, June 10-15; Chicago, Oct. 9-14. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Boston, May 17-21. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: San Francisco, June 17-19. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago 11.

AMERICAN BOARD OF PEDIATRICS: *Oral*. Washington, D. C., Feb. 19-21; Des Moines, March 19-21; New York City, May 1-3; San Francisco, June 25-27; Chicago, Oct. 8-10 and New Haven, December.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION. *Oral and Written*. Washington, D. C., Sept. 5-6. Final date for filing applications is March 31. Sec., Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Entire Examination*. Galveston, April 17-19. Final date for receipt of case reports was Jan. 1. Final date for receipt of case reports for the fall 1954 examination is June 1, 1954. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PROCTOLOGY: *Part I*. Kansas City, Philadelphia and San Francisco, May 8. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 13-14; New Orleans, Feb. 28-March 1, 1955; San Francisco, Mid-October, 1955; New York City, December, 1955. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minnesota.

AMERICAN BOARD OF RADIOLOGY: *Oral*. Spring 1954. Final date for filing application was Dec. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral-clinical and pathology*. Chicago, Feb. 17-20. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16.

BOARD OF THORACIC SURGERY: *Written*. Various centers throughout the country, Feb. 26. Final date for filing application was Jan. 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Street, Detroit, Mich.

DEATHS

Lutterloh, Charles Hartzell ☉ Hot Springs National Park, Ark.; born in Jonesboro, Ark., Oct. 13, 1897; Tulane University of Louisiana School of Medicine, New Orleans, 1921; associate clinical professor of medicine, University of Arkansas School of Medicine in Little Rock; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; past president of the Garland County Medical Society, Arkansas State Board of Medical Examiners, and the Mid-South Post Graduate Assembly; member of the American Society for Clinical Investigation, New York Academy of Sciences, American Society for the Study of Arteriosclerosis, American Diabetes Association, American Heart Association, American Geriatrics Association, American Rheumatism Association, and the American Association for the Advancement of Science; during World War I a private in the Student Training Corps, University of Arkansas, Lafayette; discharged on Nov. 26, 1918; became assistant surgeon in the U. S. Naval Reserve on July 14, 1932, with the rank of lieutenant (j.g.); after being honorably discharged served as examining physician for the Garland County Selective Service System from Aug. 2, 1941; entered the U. S. Air Force on Sept. 15, 1942, with a commission of major; transferred to the U. S. Army and was promoted to lieutenant colonel on March 18, 1944; discharged on Jan. 3, 1946; in 1948 state chairman for the Easter seal campaign for the Arkansas Association for the Crippled; consultant in medicine, Veterans Administration Hospital in Little Rock, and Army and Navy General Hospital; on the staffs of the St. Joseph's and Leo N. Levi Memorial hospitals; died Oct. 30, aged 56, of arteriosclerotic heart disease.

Mantz, Herbert Leslie ☉ Kansas City, Mo.; born in West Plains, Mo., June 28, 1896; Jefferson Medical College of Philadelphia, 1920; served during World War I; during World War II consultant for the Selective Service Board of Western Missouri; member of the board of directors of the National Tuberculosis Association, of which he was past president; past president and vice-president of the Missouri Tuberculosis Association; member and formerly a regent of the American College of Chest Physicians and was past president of the Missouri chapter; member of the Industrial Medical Association and the American Trudeau Society; for four years councilor of the seventh district of the Missouri State Medical Association; for two years secretary for the Jackson County Medical Society, which in 1951 presented him with a gold key for his contributions in the field of tuberculosis, and once served as editor of its weekly bulletin; past president of the Mississippi Valley Trudeau Society; tuberculosis controller for the Kansas City Health Department, a post which he held since 1935; chief consultant to the Missouri State Rehabilitation Division; a member of the Veterans Administration Board of Chief Consultants; served as a member of the staff of St. Mary's Hospital in Kansas City and as branch section chief, Branch No. 9, Veterans Administration, St. Louis; acted as consultant to the U. S. Public Health Service's Tuberculosis Control Division, now the Division of Chronic Disease and Tuberculosis; in 1926 medical superintendent of the Kansas City Municipal Tuberculosis Hospital in Leeds, Mo.; affiliated with St. Luke's, Research, and St. Joseph's hospitals; died Dec. 14, aged 57, of myocardial infarction.

Furlong, Francis Mohun ☉ Commander, U. S. N., retired, Annapolis, Md.; born in Washington, D. C., March 15, 1873; Georgetown University School of Medicine, Washington, 1895; veteran of the Spanish-American War and World War I; entered the navy with the relative rank of ensign on June 13, 1898; assigned to Navy's Bureau of Medicine and Surgery, July 1905 to December, 1906; promoted through the grades of passed assistant surgeon and surgeon, to that of medical inspector with the rank of commander, Medical Corps, U. S. Navy, on July 1, 1917; placed on the retired list of officers

of the navy on June 1, 1919; after serving on the U. S. S. Siren during the Spanish-American War, served on the U. S. ships Iowa, Scindia, Solace, Oregon, Yosemite, Brutus, Justin, Topeka, Prairie, Dixie, Chicago, New York, Vermont, New Jersey, and Connecticut; during his nearly 21 years of naval service, also served at the naval stations, Guam, Marianas Islands, and Guantanamo Bay, Cuba, at the navy yards, New York, Portsmouth, N. H., and Washington, D. C., and at the naval hospitals in Washington, D. C., and Chelsea, Mass.; fellow of the American College of Surgeons; for many years medical director of the American Radiator Company; died in the Naval Hospital Dec. 15, aged 80.

Laplace, Louis Borsch ☉ Philadelphia; born in Philadelphia Dec. 13, 1903; University of Pennsylvania School of Medicine, Philadelphia, 1928; assistant professor of medicine, Jefferson Medical College; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians, College of Physicians of Philadelphia, American Gerontology Society, and the American Geriatrics Society; member of the American Heart Association; past president of the Philadelphia County Medical Society and director of the Aid Association; president of the board of governors, Heart Association of Southeastern Pennsylvania; served as vice-president of the Family Service and as a member of the Nursing Council and the Health and Welfare Council of Philadelphia; served during World War II; chief physician and cardiologist, Misericordia Hospital; cardiologist, St. Joseph's and Nazareth hospitals; chief of medical services, St. Agnes Hospital; consulting cardiologist, Valley Forge Army Hospital, Phoenixville, Pa.; died Dec. 27, aged 50, of coronary thrombosis.

Hendricks, Charles McChristie ☉ El Paso, Texas; born in Gratis, Ohio, Dec. 5, 1878; Medical College of Ohio, Cincinnati, 1905; member and past president of the American College of Chest Physicians, which in 1948 awarded him its college medal for furthering progress in the field of diseases of the chest; member of the American Trudeau Society; past president of the El Paso County Medical Society; honorary life member of the Pan American Medical Association; member of the U. S. Committee of the World Medical Association; president of the American Research and Education Foundation; executive director of the Common Cold Foundation; served during World War I; formerly medical director of the Baldwin Sanatorium, El Paso Sanatorium, and the Hendricks-Laws Sanatorium; affiliated with Southwestern General Hospital and St. Joseph's Sanatorium; editor emeritus of *Diseases of the Chest*; one of the founders of the Southwestern Sun Carnival; died Dec. 9, aged 75, of cancer.

Teachenor, Frank Randall ☉ Kansas City, Mo.; born in Kansas City, Mo., Sept. 1, 1888; University of Kansas School of Medicine, Kansas City (Kan.) 1911; clinical professor of surgery at his alma mater; member of the founders group of the American Board of Surgery; specialist certified by the American Board of Neurological Surgery; past president of the Jackson County Medical Society and in 1953 received the society's merit award with gold key in recognition of "his scientific work in neurosurgery and long service to his profession"; in 1939 the American Legion of Kansas City cited him for his efforts in the rehabilitation of crippled children; past president of the Harvey Cushing Society; member of the Western Surgical Association, of which he was treasurer and president; member of the Society of Neurological Surgeons; on the staffs of Trinity Lutheran, St. Mary's, St. Luke's, St. Joseph's, and Menorah hospitals, and the Research Hospital, where he died Nov. 28, aged 65, of acute coronary thrombosis.

Agee, Ernest Cooley ☉ Marked Tree, Ark.; University of Tennessee College of Medicine, Memphis, 1949; served an internship and residency at St. Joseph Hospital in Memphis, Tenn.; died Dec. 11, aged 41, of coronary occlusion.

Baker, Benjamin Garfield ☉ Knoxville, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1911; died Nov. 26, aged 71, of coronary occlusion and bronchial asthma.

Ball, William Edward, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1916; served during World War I; for many years associated with the health department; served as admitting physician at Kings County Hospital; died Dec. 19, aged 62.

Baucom, John Edwin, Winchester, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; died Dec. 3, aged 84, of a heart attack.

Bayliss, Jacob William ☉ Buffalo; University of Buffalo School of Medicine, 1906; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology, of which he was a councillor; consultant at Millard Fillmore and Mercy hospitals; died Dec. 4, aged 71, of coronary infarction.

Bernat, Juliette, New York; McGill University Faculty of Medicine, Montreal, Canada, 1927; formerly resident in psychiatry at the Bellevue Hospital in New York; resident psychiatrist at the Pilgrim State Hospital, Brentwood, N. Y., from Oct. 18, 1949 to Sept. 30, 1950; died Nov. 11, aged 65.

Biebesheimer, George Allen ☉ Reinbeck, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; died Nov. 25, aged 71, of coronary disease.

Bradeen, Frederick Barton ☉ Essex, Conn.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; director of health of the town of Essex; served during World War I; affiliated with Middlesex Hospital in Middletown; died Nov. 1, aged 80, of coronary thrombosis.

Braswell, William Cicero ☉ Elba, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1910; served in the state legislature; died Dec. 3, aged 73.

Brown, John Archibald ☉ Kankakee, Ill.; McGill University Faculty of Medicine, Montreal, Canada, 1893; past president of the Kankakee County Medical Society; died Dec. 2, aged 82.

Bursack, Michael Metro ☉ Hazleton, Pa.; Georgetown University School of Medicine, Washington, D. C., 1934; affiliated with St. Joseph Hospital and Hazleton State Hospital, where he died Dec. 30, aged 45, of coronary occlusion.

Butler, Clarence Geln ☉ Gainesville, Ga.; University of Georgia School of Medicine, Augusta, 1920; died Nov. 30, aged 60, of coronary occlusion.

Carr, Vanderveer Taber, Uhrichsville, Ohio; the Hahnemann Medical College and Hospital, Chicago, 1907; member of the American Psychiatric Association; died in the Jamestown General Hospital Oct. 21, aged 72, of uremia.

Clark, Charles Calvin, Denver; Rush Medical College, Chicago, 1889; died Dec. 3, aged 87, of myocardial infarction and coronary sclerosis.

Coleman, Young Rufus ☉ Jonesboro, Ga.; Atlanta School of Medicine, 1908; formerly practiced in Macon, where he served as city councilman and city physician; for many years county physician; died in the Crawford W. Long Memorial Hospital in Atlanta Dec. 3, aged 83, of coronary occlusion.

Conyers, Grover Cleveland, Gates, Tenn.; University of Tennessee College of Medicine, Memphis, 1916; served during World War I; died in Kennedy Veterans Hospital in Memphis Dec. 5, aged 61, of arteriosclerotic heart disease and hypertension.

Coon, George S., ☉ Louisville, Ky.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1891; Chicago Homeopathic Medical College, 1892; fellow of the American College of Surgeons; on the staffs of Kosair Crippled Children Hospital and Kentucky Baptist Hospital; died Dec. 19, aged 88, of coronary occlusion.

Dalton, J. Rufus, Lexington, Ky.; Meharry Medical College, Nashville, Tenn., 1918; died recently, aged 59.

Dickey, Clarence Dudley Jr., ☉ Los Angeles; College of Physicians and Surgeons, Los Angeles, 1921; served during World War II; died Nov. 21, aged 57, of carcinoma of the colon, cirrhosis of the liver, and peritonitis.

Eales, Irving James, Chicago; College of Medicine and Surgery (Physio-Medical) Chicago, 1903; died in West Suburban Hospital in Oak Park, Dec. 23, aged 93, of pulmonary embolism and myocarditis.

Farrar, Holway Dean, San Diego, Calif.; Starling Medical College, Columbus, 1898; at one time practiced in Columbus, Ohio; died Dec. 8, aged 80, of arteriosclerosis.

Fetherston, Ernest Albert ☉ Winnetka, Ill.; Northwestern University Medical School, Chicago, 1899; one of the founders and first secretary of the Ravenswood Hospital; died in Flower Hospital, Toledo, Jan. 5, aged 79, of arteriosclerosis and benign prostatic hypertrophy.

Gaede, Alvin Walter ☉ Bakersfield, Calif.; University of Kansas School of Medicine, Kansas City, Kan., 1931; died in Los Angeles Nov. 19, aged 54, of coronary thrombosis.

Garrison, Isaac Logan ☉ Phoenix, Ariz.; Washington University School of Medicine, St. Louis, 1910; died Dec. 4, aged 85, of cerebral vascular accident.

Gibson, Frank Eugene Sr., ☉ Bethesda, Md.; Columbian University Medical Department, Washington, D. C., 1899; member of the Medical Society of the District of Columbia; permanent treasurer of the Washington (D. C.) Medical and Surgical Society, which in 1937 established the Frank E. Gibson award in his honor, to be presented each year to "an outstanding figure in medicine in the city"; died Dec. 20, aged 80, of cerebral hemorrhage.

Gregory, Frederick Leslie ☉ Caribou, Maine; McGill University Faculty of Medicine, Montreal, Canada, 1912; fellow of the American College of Surgeons; served during World War I; affiliated with Cary Memorial Hospital; died Dec. 12, aged 67, of nephrosclerosis and uremia.

Harper, Russell Lowell, Yoakum, Texas; Meharry Medical College, Nashville, Tenn., 1916; died Nov. 21, aged 60, of a heart attack.

Hiett, Alva ☉ Monmouth, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; died in the Monmouth Hospital Dec. 10, aged 77, of diverticulum of the esophagus.

Horner, Erwin ☉ New York City; Medizinische Fakultät der Universität, Vienna, Austria, 1909; on the staff of the Mount Sinai Hospital, where he died Nov. 8, aged 69, of carcinoma of the prostate.

Howard, Merle Quest ☉ Fort Steilacoom, Wash.; University of Oklahoma School of Medicine, Oklahoma City, 1916; member of the State Medical Society of Wisconsin and the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; served during World War I; on the staff of the Western State Hospital; died Dec. 5, aged 62.

Howell, Francis Musgrave ☉ Hopewell, Va.; University of London Faculty of Medicine, England, 1908; accidentally drowned Nov. 28, aged 77, when he fell from his motor sailboat.

Imhoff, Robert Ernst ☉ Camden, N. J.; Jefferson Medical College of Philadelphia, 1927; served during World War II; member of the staffs of Cooper Hospital in Camden, Burlington County Hospital in Mount Holly, and Zurbrugg Memorial Hospital in Riverside; died Dec. 20, aged 53, of coronary occlusion.

Jackson, Lawrence Waters, Washington, D. C.; Howard University College of Medicine, Washington, D. C., 1919; died in Freedmen's Hospital Jan. 2, aged 59, of hypertensive arteriosclerotic cardiovascular disease.

Ledesma, Serapion Buenafe ☉ Salinas, Calif.; University of Nebraska College of Medicine, Omaha, 1932; served during World War II; died Nov. 18, aged 53.

Lehmer, Elizabeth E. ☉ Vinita, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1920; for many years on the staff of the Eastern State Hospital; died Nov. 13, aged 66, of carcinoma of the liver.

Leonard, John Edwin ☉ Harford Mills, N. Y.; Long Island College Hospital, Brooklyn, 1889; served as county coroner and as health officer of the town of Harford; died in Johnson City Dec. 8, aged 86, of arteriosclerosis and diabetes mellitus.

Lopatin, Edward ☉ San Francisco; Boston University School of Medicine, 1929; member of the Massachusetts Medical Society; served during World War II; died in the Memorial Hospital, Worcester, Dec. 18, aged 50, of glioblastoma of the brain.

McKinley, Charles Robert ☉ Brewster, Wash.; University of Oregon Medical School, Portland, 1901; in the spring of 1951 McKinley Memorial Hospital was dedicated in his name in Brewster; died Dec. 5, aged 80, of cirrhosis of the liver.

Mason, Frederick C., Massena, N. Y.; McGill University Faculty of Medicine, Montreal, Canada, 1902; died recently, aged 76, of coronary occlusion.

Mason, George Edward, Grand Island, Neb.; Lincoln Medical College, Eclectic, 1917; died Oct. 27, aged 82, of carcinoma of the liver.

Miller, Orden Eugene ☉ York, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1941; served overseas during World War II; died in the York Hospital Nov. 30, aged 43, of pulmonary embolism.

Murray, John Hamilton ☉ Carrollton, Ohio; Chicago College of Medicine and Surgery, 1916; past president of the Carroll County Medical Society; served in France during World War I; affiliated with Mercy Hospital in Canton; died Nov. 29, aged 63, of pulmonary thrombosis.

Myers, Judson William ☉ Postville, Iowa; State University of Iowa College of Medicine, Iowa City, 1915; served during World War I; died Dec. 16, aged 64, of coronary occlusion.

Nelson, Ole C., ☉ Chicago; Chicago Medical School, 1920; for many years assistant warden and for 12 years medical director of the Cook County Hospital, where he retired in June, 1953; familiarly known as "Mr. County Hospital"; died in his home in Oak Park, Ill., Jan. 16, aged 72, of coronary thrombosis.

Nicholson, Plummer A., Washington, N. C.; College of Physicians and Surgeons, Baltimore, 1889; formerly vice-president of the Seaboard Medical Association; died Nov. 28, aged 88, of senility.

Nock, Randolph Maxwell, Salisbury, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; fellow of the American College of Surgeons; affiliated with Peninsula General Hospital; died in the University Hospital, Baltimore, Dec. 15, aged 51.

Osborne, Fielden L., Rugby, Va.; University of Louisville (Ky.) Medical Department, 1894; died Oct. 7, aged 83, of uremia.

O'Sullivan, Anna ☉ Boston; Tufts College Medical School, Boston, 1910; served as secretary of the Massachusetts Women's Medical Society; affiliated with New England Hospital for Women and Children; died Nov. 18, aged 77, of a heart attack.

Payzant, Claude Louis ☉ Boston; Boston University School of Medicine, 1910; past president of the New England Physical Therapy Society; served on the staff of the Quincy (Mass.) City Hospital; died Dec. 5, aged 66, of heart disease.

Phipps, Zack Glenn, Galax, Va.; Tennessee Medical College, Knoxville, 1900; died Oct. 29, aged 77, of brain tumor and chronic bronchiectasis.

Plunkett, Randolph S., Picayune, Miss.; Memphis (Tenn.) Hospital Medical College, 1910; died in Touro Infirmary, New Orleans, Dec. 26, aged 78.

Porter, Robert Fulton ☉ Middlesboro, Ky.; University of Louisville (Ky.) School of Medicine, 1929; served during World War II; formerly health officer of Grayson County; died Dec. 31, aged 53.

Powell, Leo M., New York City; New York Homeopathic Medical College and Flower Hospital in New York, 1915; died in Mount Sinai Hospital Oct. 11, aged 70.

Reed, Jewett Villeroy ☉ Indianapolis; Johns Hopkins University School of Medicine, Baltimore, 1904; assistant professor emeritus of surgery at Indiana University School of Medicine; fellow of the American College of Surgeons; served during World War I; on the staff of the Methodist Hospital; died Dec. 4, aged 75, of pneumonia.

Reeser, Norman Brandt, Camp Hill, Pa.; College of Physicians and Surgeons, Baltimore, 1912; served on the staff of the Lancaster (Pa.) General Hospital; died Dec. 16, aged 66, of coronary thrombosis.

Rice, William Frederick, Lieut. Col., U. S. Army, retired, Fresno, Calif.; born in Salisbury, N. C., June 21, 1885; University of Maryland School of Medicine, Baltimore, 1914; served during World War I; entered the regular army as a first lieutenant June 14, 1916; promoted to lieutenant colonel May 26, 1936; retired Oct. 31, 1939 for disability in line of duty; medical director of the California Industrial Safety Center; fellow of the American College of Physicians; died Dec. 14, aged 68, of heart disease.

Ricketts, Wilbur Anthony ☉ Dayton, Ohio; Ohio State University College of Medicine, Columbus, 1923; past president of the Montgomery County Medical Society, and the Dayton Obstetrical Society; fellow of the American College of Surgeons; affiliated with St. Elizabeth Hospital, Good Samaritan Hospital, and the Miami Valley Hospital, where he died Dec. 28, aged 57, of cerebral thrombosis.

Rosburg, August Henry ☉ San Francisco; Rush Medical College, Chicago, 1912; died Nov. 29, aged 70, of coronary thrombosis.

Rose, Samuel ☉ New York City; Long Island College Hospital, Brooklyn, 1908; a draft board medical examiner during World Wars I and II; died in the Mount Sinai Hospital Dec. 22, aged 70, of coronary heart disease.

Saffer, Delbert Thornton ☉ Middleburg, Va.; Medical College of Virginia, Richmond, 1930; president of the Loudoun County Medical Society; deputy coroner of Loudoun County; clinician to Fauquier-Loudoun Health Center; died Dec. 6, aged 48, of coronary thrombosis.

St. John, Byron Douglas ☉ Port Washington, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1921; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; consultant at the North Shore Hospital in Manhasset; attending physician on the staffs of the Nassau Hospital in Mineola, Meadowbrook Hospital in Hempstead, and Flower and Fifth Avenue Hospitals in New York, where he died Dec. 15, aged 58, of coronary disease.

Schaaf, Katherine M., ☉ St. Louis; Barnes Medical College, St. Louis, 1905; died Nov. 8, aged 78.

Schlesselman, George Herman ☉ Minneapolis; the Hahnemann Medical College and Hospital, Chicago, 1913; on the staff of the Swedish Hospital, where he died Nov. 3, aged 68, of adenocarcinoma of the rectum.

Seligmann, Erich, New York City; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1904; fellow of the American Public Health Association; affiliated with Beth Israel Hospital, where he died Jan. 1, aged 73, of cerebral hemorrhage.

Shell, Roy Adeson, Chicago; Meharry Medical College, Nashville, Tenn., 1915; died Dec. 13, aged 66, of hypertensive heart disease.

Smith, DeVerne Churton ☉ Flint, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; affiliated with St. Joseph Hospital and Hurley Hospital, where he died Dec. 17, aged 73, of hemorrhage from duodenal ulcer.

Smith, George Chester, Monrovia, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1904; died Dec. 4, aged 74, of coronary occlusion.

Smith, Paul Ruskin ☉ Wilmington, Del.; Jefferson Medical College of Philadelphia, 1907; past president of the New Castle County Medical Society; formerly vice-president of the Medical Society of Delaware; for many years surgeon for the city bureau of police; affiliated with the Delaware Hospital, where he died Dec. 5, aged 69, of cerebral hemorrhage.

Sommer, Karl Moritz ☉ New York City; Medizinische Fakultät der Universität, Vienna, Austria, 1930; on the staff of Mount Sinai Hospital; died Dec. 26, aged 49, of cancer.

Stanton, Joseph ☉ Boston; Harvard Medical School, Boston, 1903; fellow of the American College of Surgeons; visiting surgeon, Newton-Wellesley Hospital in Newton Lower Falls; surgeon and for many years chief of staff, St. Elizabeth's Hospital, where he was a trustee; died Jan. 2, aged 75.

Steere, Frederick Eugene ☉ Claremont, Va.; Medical College of Virginia, Richmond, 1909; also a graduate in pharmacy; died in St. Luke's Hospital, Richmond, Nov. 29, aged 83, of coronary thrombosis.

Stookey, Lionel Jerome, San Francisco; Tulane University of Louisiana School of Medicine, New Orleans, 1924; on the staff of the Mary's Help and St. Francis hospitals; died Dec. 1, aged 62, of myeloma and coronary occlusion.

Swindell, Charles LeRoy, Kecoughtan, Va.; University of Maryland School of Medicine, Baltimore, 1909; died in Hampton Oct. 12, aged 69, of bronchogenic carcinoma with widespread metastases.

Tennent, Gaillard S., ☉ Asheville, N. C.; North Carolina Medical College, Davidson, 1894; past president of the Buncombe County Medical Society; served during World War I; died Oct. 29, aged 81, of carcinoma of the pancreas.

Thearle, William Henry ☉ Albuquerque, N. Mex.; College of Physicians and Surgeons, Baltimore, 1908; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; member of the American Association of Thoracic Surgery, American College of Chest Physicians, and the American Trudeau Society; at one time an officer in the regular army; member of the staff, Southwestern Presbyterian Sanatorium and St. Joseph Sanatorium and Hospital; died Dec. 3, aged 69.

Thomas, Llewelyn Ivor ☉ Akron, Ohio; Jefferson Medical College of Philadelphia, 1912; captain, Medical Corps, U. S. Army during World War I; venereal disease control officer, Akron Municipal Health Department; affiliated with the City Hospital; died Nov. 10, aged 66, of coronary occlusion.

Travis, Daniel J., Eddyville, Ky.; University of Louisville (Ky.) Medical Department, 1901; member of the county board of health; died Dec. 21, aged 80, of cerebral hemorrhage.

Tripp, Edwin Prescott ☉ Falmouth, Mass.; Tufts College Medical School, Boston, 1910; for many years associate medical examiner; died Dec. 11, aged 77, of carcinoma of the sigmoid colon.

Tunstead, Hugh John ☉ Minneapolis; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1901; formerly on the faculty of his alma mater; served on the staff of the Minneapolis City Hospital; died in the Eitel Hospital Nov. 29, aged 77, of arteriosclerotic heart disease.

Tyler, George Colbert, Newport News, Va.; University of Tennessee College of Medicine, Memphis, 1924; city health officer from 1927 to 1941; served during World War I; consultant for Chesapeake and Ohio Railroad Company; member of the medical staff, Newport News Shipyard and Dry Dock Company; on the staff of the Riverside Hospital; died in a Chesapeake and Ohio train coach in Richmond Nov. 21, aged 55, of coronary arteriosclerosis.

Tyson, Forrest Clark, Manchester, Maine; Tufts College Medical School, Boston, 1905; member of the American Psychiatric Association and the New England Society of Psychiatry, of which he was past president; assistant superintendent of the Bangor State Hospital from 1907 to 1913, when he became superintendent of the Augusta State Hospital, serving until 1946; died Dec. 25, aged 71, of acute coronary disease.

Ullman, Albert Eckhardt, North Babylon, L. I., N. Y.; Columbia University College of Physicians and Surgeons, New York, 1899; for many years on the staff of the Central Islip State Hospital; served on the staffs of the Kings Park (N. Y.) State Hospital and the Willard Parker Hospital in New York; died in Nassau-Suffolk General Hospital in Copiague Nov. 24, aged 79, of lobar pneumonia.

Wearne, Frederick John ☉ Omaha; John A. Creighton Medical College, Omaha, 1898; an Associate Fellow of the American Medical Association; past president of the Omaha-Douglas County Medical Society; served on the staffs of St. Joseph's and St. Catherine's hospitals; died Dec. 5, aged 79, of arteriosclerosis.

Webb, Frank Reed, Los Angeles; Columbia University College of Physicians and Surgeons, New York, 1902; formerly chief autopsy surgeon, county coroner's office; died in the Hollywood Presbyterian Hospital Dec. 7, aged 76, of arteriosclerotic heart disease.

Wehman, Edward John ☉ Burlington, Iowa; St. Louis University School of Medicine, 1905; member of the Radiological Society of North America; served overseas during World War I; formerly health officer; affiliated with Burlington Hospital; died Dec. 5, aged 73, of coronary thrombosis.

Wells, Donald Breckenridge ☉ Hartford, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1912; member of the founders group of the American Board of Surgery; member of the New England Surgical Society; fellow of the American College of Surgeons; served during World War I; affiliated with Bristol (Conn.) Hospital, J. J. McCook Memorial Hospital, Institute of Living, and the Hartford Hospital, where he died Dec. 22, aged 69, of carcinoma.

Whitehill, Nelson McPhee ☉ Boone, Iowa; Rush Medical College, Chicago, 1897; died Nov. 14, aged 83, of coronary occlusion.

Wiggers, Henry Hamilton ☉ Cincinnati; Pulte Medical College, Homeopathic, Cincinnati, 1892; at one time secretary-treasurer of his alma mater; fellow of the American College of Surgeons; formerly a member of the city health department; served as president of the Wiggers Realty Company, as director of the City Hall Bank, and as president of the Cincinnati Lyceum; affiliated with Bethesda Hospital, where he was past chief of staff and where he died Dec. 23, aged 84.

Williams, Arthur Maurice ☉ White Plains, N. Y.; University and Bellevue Hospital Medical College, New York, 1925; chairman of the executive committee of the National Association for the Advancement of Colored People; on the staff of St. Agnes Hospital, where he died Nov. 17, aged 56, of coronary occlusion.

Wilson, Dale ☉ Toledo, Ohio; Toledo Medical College, 1901; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during the Spanish-American War and World War I; affiliated with Toledo, St. Luke's, and Maumee Valley hospitals, and the Mercy Hospital, where in 1949-1950 he was chief of staff and where he died Dec. 14, aged 75, of cardiorenal vascular disease.

DIED WHILE IN MILITARY SERVICE

Withers, Samuel Meacham Jr., ☉ Moultrie, Ga.; born in Chadbourne, N. C., Jan. 30, 1905; Medical College of Georgia, Augusta, 1935; interned at Piedmont Hospital in Atlanta, where he was a resident; served during World War II; honorably relieved from active duty on Nov. 22, 1945; returned to active duty in the Army, October, 1950; stationed at Fort Benning, Ga., until July, 1952; at the time of his death was serving as a major in the Medical Corps, Officers Reserve Corps, in charge of the 548th General Dispensary in Korea, where he died June 19, 1953, aged 48, of myocardial infarction.

GOVERNMENT SERVICES

ARMY

Major Lee Wins Sportsmanship Trophy.—Major Samuel Lee, San Francisco, of the U. S. Army Medical Corps, 1948 and 1952 Olympic diving champion, has been named winner of the 1953 James E. Sullivan memorial trophy. The award, made by the National Amateur Athletic Union, goes annually to "the amateur athlete who by performance, example, and good influence, did most to advance the cause of good sportsmanship during the year." Dr. Lee was born in California and served as an enlisted man during World War II. He became a regular Army medical officer July 27, 1949, after having served as a medical officer in the U. S. Army since June 16, 1946.

Personal.—Major Gilbert J. Vosburgh, professor of obstetrics and gynecology at Western Reserve University, Cleveland, before his call to active duty, has been assigned to the Army Surgical Research Unit at Brooke Army Medical Center, Fort Sam Houston, Texas.

NAVY

Training Course in Isotopes.—The third annual training course in special weapons, isotopes, and military medicine presented by the district medical and dental officers of the 12th naval district will be conducted at the Naval Station, Treasure Island, San Francisco, March 1-5. The course will provide reserve and regular medical department officers with information concerning the many aspects of special weapons, isotopes, and military medicine and dentistry. Naval Reserve Medical, Dental, Medical Service, Nurse, and Hospital corps officers residing in the 11th, 12th, and 13th naval districts who desire to attend this course in a pay status should submit their requests for active duty for training to their naval district commandants at an early date. Active duty medical department officers may be given authorization orders, at no expense to the government, in accordance with current instructions. Government transportation between Treasure Island and the Federal Office Building, San Francisco, will be furnished at 8 a. m. and 4 p. m. daily.

PUBLIC HEALTH SERVICE

Sewage Treatment Plants.—Construction contracts for 155 projects to aid in the nation's stream pollution abatement efforts, through providing treatment of sewage from municipalities, institutions, and other significant population centers, were awarded during the third quarter of 1953, the U. S. Public Health Service reports. The contracts totaled 38 million dollars and covered 87 new plants and 68 additions, enlargements, or improvements to existing plants.

Of the 87 new plants, only 7 were for places of more than 20,000 population: Jefferson County, Alabama, Kalamazoo, Mich., Middle Rouge Parkway Area, Mich., Knoxville, Tenn. (2 plants), and Weirton, W. Va. (2 plants). More than half of the new plants will serve places of fewer than 5,000 population. Although both the number and the dollar value of contracts for the third quarter are substantially below those for the previous quarter, the totals for the first nine months of 1953 are still about 20% higher than for the comparable period of 1952.

Personal.—Dr. Arthur B. Price has been appointed director of the health resources staff of the Office of Defense Mobilization succeeding Dr. W. H. Aufranc, who has returned to the U. S. Public Health Service. The health resources staff does the staff work for the Health Resources Advisory Committee, which advises the director of the Office of Defense Mobilization on the health resources of the nation and on mobilization planning activities in the health field. Dr. Price, a career officer in the

U. S. Public Health Service since 1934, has been appointed executive secretary of the Health Resources Advisory Committee.—Dr. Henry W. Brosin, professor of psychiatry, University of Pittsburgh Medical School, and director, Western Psychiatric Institute and Clinic in Pittsburgh, has been appointed to serve on the National Advisory Mental Health Council. Except for service in the U. S. Army Medical Corps during World War II, Dr. Brosin has devoted his career to teaching psychiatry, first as instructor in psychiatry and then as professor of psychiatry and head of the division of psychiatry at the University of Chicago Medical School.

Guest Lecturer at National Institutes of Health.—The first in the 1954 series of guest lectures of the National Institutes of Health at Bethesda, Md., was sponsored by the National Heart Institute and presented Jan. 14 by Dr. John R. Pappenheimer of the department of physiology of Harvard Medical School, Boston. The subject was "Ultrafiltration and Diffusion Through Biological Membranes." This lecture opened the second series. Each year eight lectureships are awarded by the office of the director and the seven research institutes that comprise the National Institutes of Health.

VETERANS ADMINISTRATION

Hospital News.—Dr. Asa B. Friedmann, radiationtherapist of Brooklyn, lectured on the scope of radiation therapy at the VA Hospital, Newington, Conn., Dec. 17, 1953.—Dr. Daniel Blain, medical director, American Psychiatric Association, Washington, D. C., discussed "Administrative Phases of the Treatment Process" before the members of the hospital staff of the Veterans Administration Hospital, Northport, N. Y., Jan. 14.—Dr. Kenneth E. Appel, professor of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, and President of the American Psychiatric Association, lectured on psychotherapy at the VA hospital at Downey, Ill., Feb. 3.

MISCELLANEOUS

Technicians for Overseas Assignments.—Under President Eisenhower's Reorganization Plan No. 7, the responsibility for worldwide technical programs, formerly conducted by several U. S. government agencies, was centralized in the Foreign Service Institute of the Department of State, under the Director of Foreign Operations, Harold E. Stassen. The F. O. A. has just announced that 23 technicians from various states have completed a three week orientation course at the institute and are ready to take assignments with overseas missions. This course emphasizes the customs, language, and history of the people among whom the technicians will live and work, sharing their skill and knowledge, and showing them how to develop their own resources and abilities. This course has now been given to 30 such groups who are serving in 56 countries. These groups include specialists in, among other things, parasitology, medical entomology, public health, sanitation, nursing, and social welfare. Among the 23 who have just completed this course and are ready for assignment are Dr. Arthur C. Curtis of Little Rock, Ark., director, division of tuberculosis control, Arkansas State Board of Health, who will join the mission in Ethiopia; Deward E. Waggoner, Ph.D., of Portland, Ore., formerly a commissioned officer in the U. S. Public Health Service and director of public health statistics of the Kansas State Board of Health, who will join the mission in Egypt as a medical and public health statistician; and Joseph E. Alicata, Ph.D., of Honolulu, Hawaii, formerly a zoologist with the U. S. Department of Agriculture and for many years with the University of Hawaii, Agricultural Experiment Station, who will join the operations mission in Jordan, where he is scheduled to serve with the central laboratory at Amman.

FOREIGN LETTERS

BELGIUM

Aeromedical Association.—The French-speaking branch of the Aeromedical Association met in Brussels in September. General Bergeret (France) and Major Wiesinger (Switzerland) each reported on fatigue in jet pilots. General Bergeret in summarizing the discussion said that the fatigue of jet pilots is not essentially different from that of pilots of airplanes with reciprocating engines. It is a complex mixture of mental and emotional factors. It is possible to avoid the overexcited stage by providing for total recuperation based on healthy relaxation, sufficient sleep, and a moderate program of sports after each flight or day of flying. Major Wiesinger with the cooperation of General Bergeret and Major Evrard (Belgium) reported on the problem of aging in military pilots. There is no evidence that either military or civilian pilots show signs of aging earlier than persons in other occupations, and it does not seem feasible at present to formulate rigid rules governing retirement. Every case must be judged on its merits. The next meeting will be held in Zurich in September, 1954.

Alcoholism and Criminality.—At a meeting of the Legal Medicine Society of Belgium in October, 1953, Alexander reported on 12 crimes or misdemeanors, ranging from murder to minor infractions of the law. In every case, the guilty person was arrested or gave himself up to the police immediately after the act and alcoholism was found to be a causative factor in all these acts. Although a blood alcohol determination was only rarely made in such cases, it was the consensus that it should be extended to these cases and not limited, as at present, to persons involved in automobile accidents. A clinical examination of these persons should also be made as soon as possible. In certain cases it would also be advantageous to examine the victim. The characteristics presented by certain subjects suspected of a toxicomania other than alcoholism should also be noted. These things would not only clarify individual situations but also reveal any relation that may exist between the amount of alcohol in the blood and certain types of crime.

LONDON

New Hospital Building.—So few new hospital buildings have been built since the end of the war in Great Britain that it is of interest to note the opening of a new outpatient department at St. James' Hospital in southwest London, a former municipal hospital. Built at a cost of £200,000, it has been described as "the most modern in the world." The structure of the building consists of a shell of brick piers and especially strong glass. Almost the only other fixed parts are the cork-tiled floors and the interior piers. The laminated plastic partition walls are all removable. In other words, the whole building can be reorganized within a few days for other purposes. It consists of two blocks. In the north block, the entrance hall, lounge, and administrative offices are on the ground floor, with the ear, nose, and throat and eye clinics above and the chest clinic below. In the south block, the ground floor is given over to the orthopedic and gynecologic clinics, with the medical clinics on the first floor and the surgical clinics on the top floor.

Schools for Maladjusted Children.—"The present situation of schools for maladjusted children seems so deplorable, and so likely to discredit their value, that it requires discussion" is the view expressed by Dr. W. Mary Burbury in a recent article in *Lancet* (2:1251, 1953). She advocates that each group of such schools be associated with a hospital unit adequately staffed by "psychiatrically trained personnel." There would be interchange between the hospital and the school, and "the hospital ward might well act as a diagnostic centre as well as a

place for treatment." Teachers might be allowed into the hospital to instruct individual children or very small groups. The school should have a hostel for children ready to try ordinary school life, and for adolescents ready to try a job, but not yet ready to return to their homes. A holiday center or camp is also needed for children unable to return home for holidays. The natural center for such a unit would be a university with a medical school that offers postgraduate training to physicians specializing in child psychiatry and also provides courses for teachers, social workers, and psychiatric social workers. Separate schools would be planned for children of different sex, ages, and intelligence levels and with different types of problems. Staffing should be "generous, hours short, and classes small," and teachers should have special training in the handling of the maladjusted child. Specially trained nurses would also be required in the hospital wards dealing with these children.

Faulty Penicillin Tablets.—Much publicity has been given to a report from Birmingham of an examination of 82 samples of oral penicillin tablets supplied on prescription in Birmingham. Of these tablets, 19 did not comply with the B.P. standard of containing not less than 90% penicillin; 4 showed a deficiency of 22 to 27%, 4 of 33 to 62%, and 4 of 90 to 100%. "This may fairly be interpreted," the analyst comments, "as saying that a patient stands a one in 20 chance of being supplied with tablets entirely devoid of any therapeutic value." Only 22 of the 82 samples were supplied in the makers' original sealed containers, 27 were supplied in stoppered containers other than the original, and 33 were dispensed in cardboard boxes. Eight of the last lot were defective. The four tablets dispensed in one prescription were so wet that they had stuck to each other and to the cardboard container. Another sample was supplied in a cardboard pillbox containing cotton wool to which the tablets, which were a bright yellow instead of white, had partially adhered because of their damp condition. In contrast to this sorry picture, samples purchased direct from the manufacturers were all found to be of full strength. One of the recommendations made by the analyst is that physicians should be encouraged to prescribe penicillin tablets for oral use in numbers equal to the number of tablets contained in a single package, thus rendering it unnecessary to "break bulk."

Teething Powders.—Last year, in reply to a question in the House of Commons, the Minister of Health stated categorically that "the indiscriminate use of teething powders containing mercury is clearly undesirable." Neither mothers nor manufacturers paid any attention to this warning, and the powders continued to be sold in large numbers in the pharmacies of the country, 7 million packages of one popular brand being sold every year. Matters were recently brought to a head in a county where sales were unusually high. In succeeding weeks inquests were held on two infants who had died of a disease attributed to mercurial poisoning as a result of the ingestion of teething powders containing mild mercurous chloride (calomel). The manufacturers of this brand have announced that they have replaced the mercurous chloride with phenolphthalein in their powders. It is now hoped that other manufacturers will follow their example and omit the mild mercurous chloride from their teething powders.

Use and Abuse of Detergents.—An interesting report on the use of detergents, based on an investigation carried out by the London County Council, has been presented to the Royal Sanitary Institute. The Council spends about £35,000 a year on detergents. One of the main conclusions of the report is that there is no direct relation between the efficiency of a detergent and its ability to produce a foam. On the other hand, it was found that if workers were forced to use a mixture with little or no foaming power they were very dissatisfied. "This psychological reaction should not be disregarded, and in consequence good foaming power is required until time and staff are avail-

*The items in these letters are contributed by regular correspondents in the various foreign countries.

able to convince the very large number of washers that this is not necessarily an important factor." The view is expressed that alleged skin conditions attributed to the use of detergents are largely due to their extravagant use. No complaints of dermatitis of the hands had been received during the use of over 1,000 tons of blended synthetic detergent mixtures, a result attributed to control of the amounts of water.

Multiple Sclerosis Society.—A Multiple Sclerosis Society has been founded by a group of lay persons, most of whom have close relatives suffering from the disease. It will follow broadly the form of the National Multiple Sclerosis Society in the United States. It aims at cooperating with the medical profession in encouraging scientific research into the cause and cure of the disease. In addition, it proposes to develop a rehabilitation program for victims of the disease. Members of the society will visit patients and give them help and advice, and, if necessary, financial assistance. It is estimated that disseminated sclerosis attacks one person in 2,000 in Great Britain.

Public Health.—The annual report of the Chief Medical Officer of the Ministry of Health for 1952, dealing with England and Wales (Scotland has its own Department of Health), ranges over a wide field. The estimated population, 43,940,000, is 140,000 greater than 1951, but more interesting is the age distribution: 22% of the population were less than 15, 67% between 25 and 64, and 11% aged 65 and over. The corresponding percentages for 1901 were 32, 63, and 5. It is estimated that 50 years from now there will be as many persons over 65 in the population as there are persons under 15. There was a further fall in the birth rate, from 15.5 per 1,000 population in 1951 to 15.3. The stillbirth rate was 22.7 per 1,000 total live and still births. The death rate at 11.3 per 1,000 was the second lowest ever recorded. The most striking decrease in the death rate was among young women; at ages 15 to 19 a fall from 0.78 per 1,000 in 1950 to 0.51 in 1952, a relative improvement of 35%, and at ages 20 to 24, a fall from 1.09 per 1,000 in 1950 to 0.76 in 1952, a relative improvement of 30%. Most of this improvement is attributed to the decline in deaths from tuberculosis, which used to be responsible for about half of the total deaths in this age group. The expectation of life is now 67 years for males and 72 for females. The number of deaths from respiratory tuberculosis was 22% less than in 1951 and less than half the number in 1948. Deaths from cancer of the lung, however, continued to increase, and three deaths were assigned to cancer of the lung for every two assigned to respiratory tuberculosis. The actual figure (14,218) was only slightly less than that for cancer of the stomach (14,409), which still leads the list of malignant growths in the causes of death. The number of deaths due to coronary disease was 61,429 compared with 40,330 in 1948. The deaths from leukemia continued to increase; there were 2,043 compared with 1,489 in 1948. There were 32 deaths from diphtheria (2,285 in 1932). The infant mortality rate fell again, to 27.6 per 1,000 reported live births, compared with 29.7 in 1951. Among reportable infectious diseases, the more outstanding figures are 372 confirmed reports of diphtheria (658 in 1951); 130 of typhoid (202 in 1951); 1,038 of paratyphoid (1,094 in 1951); and 135 of smallpox (27 in 1951).

Some interesting figures are quoted from the results of the 1951 census of population. The average family size was 1.69. Of married women under 45, 5% had five or more children, compared with 20% in 1911. The population drift from agriculture and from villages to towns continues. Compared with 1931, there are fewer miners, textile workers, and women in domestic service and more builders, clerks, professional workers, and employees in the chemical and engineering occupations. For instance, there were only 178,000 resident domestic servants in private households, compared with 706,800 in 1931.

In the chapter on smallpox it is pointed out that, compared with 1951, the total number of persons vaccinated during 1952 was fewer by over 92,000 and the total number of revaccinations fewer by 210,000. The vaccinia rate for infant vaccination was only 30.6%, but this showed a slight rise over 1950 and 1951. Not more than 1 in 25 of the children entering or leaving school who had been previously vaccinated in infancy were revaccinated. As complications of vaccination, there were 15

cases of generalized vaccinia (two fatal) and six of postvaccinal encephalomyelitis (one fatal). This gives an incidence of generalized vaccinia of 1 per 20,000 primary vaccinations at all ages.

Details are given of an investigation of the effect of ultraviolet light irradiation in schoolrooms on the health of school children. Observations were made in six schools for three years (1946-1948). In three of the schools all classrooms and assembly halls of the infant and junior departments were equipped with ultraviolet lamps to irradiate the air in the upper part of the room and irradiation was maintained during school hours throughout the whole period. There were 1,550 children in the irradiated schools and 1,860 in the control schools. The final results showed that "there was no appreciable effect on the total sickness in either the infant or junior departments."

The following quotation from the section on typhoid is in the best Sherlock Holmes' tradition: "Outbreaks were few and small. In one of these the connexion between the widely scattered cases was established only by elaborate laboratory investigation. The seven patients concerned gave a history of some definite association between their illness and a previous visit to one particular section of the East Anglian coast. In four instances the patients had eaten cockles which they had gathered from the foreshore adjoining the outfall of a small sewage treatment plant; in three instances the patients had bathed in the tidal estuary at the same point. Phage-typing of the cultures derived from these patients showed that all belonged to an 'untypable' Vi-strain giving the same phage reaction. An identical strain of *Salm. typhi* was also isolated from one sample of cockles taken from the foreshore, and at a later date, after numerous specimens of effluent had been examined without result, the same strain of *Salm. typhi* was isolated from a specimen of crude sewage taken at the point of entry of the main sewer into the treatment plant. Particular interest attaches to these cases, because four of them were in visitors from towns far from East Anglia, and it was the results of routine phage typing which directed attention to this one small section of the coast as the place of infection, and established proof of infection from sewage effluent discharging at that point."

The number of new cases of syphilis has fallen to 891 in men and 462 in women, compared with 1,498 in men and 774 in women in 1951. The number of cases of congenital syphilis in infants less than 1 year old fell from 156 in 1951 to 110 in 1952, the lowest figure ever recorded. The number of cases of gonorrhea is rising: 15,510 men and 3,585 women were affected, compared with 14,975 men and 3,089 women in 1951. There has also been an increase in the number of new cases of nongonococcal urethritis in men, from 10,794 in 1951 to 11,552 in 1952. In discussing the present position and the future, the following comments were made: "The fact that, in spite of penicillin and other antibiotics, venereal urethritis in man (both gonococcal and non-specific) as well as gonorrhea in women has increased during 1952 should restrain any tendency to complacency about the venereal diseases position, or any temptation to exaggerate the impact of antibiotics on these diseases." What has occurred with gonorrhea might yet happen with syphilis and the effect on the public health of an increase in nongonococcal urethritis, now recognized as a venereal disease, cannot yet be appreciated. Sexual promiscuity is still rife and so long as this is the case, the danger of venereal disease remains. An analysis of the results of antenatal syphilis testing from six centers shows that, of 103,810 specimens of blood tested, 364 (0.35%) were positive. The figures from two of these centers have been further analyzed according to whether the woman was a primipara or a multipara, and the results show positive tests among 0.25% of the primiparas and 0.6% of multiparas. The comment is made that "these figures, if they are supported from other centers in subsequent years, suggest that blood-testing for syphilis is advisable not only in a first pregnancy but also as a routine in subsequent pregnancies."

The figures for acute rheumatism show "another welcome reduction" in the number of deaths attributed to rheumatic fever, 328, compared with 378 in 1951 and 1,029 in 1943. Supplies of cortisone and corticotropin for the treatment of all forms of rheumatism are still limited; during the year 4,200 National Health Service patients were treated with these substances.

PARIS

Treatment of Gastric Ulcer.—At the meeting of the Medical Society of Paris Hospitals on Oct. 16, 1953, R. Cattani and P. Frumusan reported a treatment for gastric ulcer that was suggested by Dr. Buccaille a few years ago. Their patient, a 74-year-old man, had a large ulcer of the lesser curvature of the stomach. Because the usual forms of treatment did not relieve his severe pain, the authors infiltrated the left frontal lobe of the brain with 15 cc. of procaine. This immediately relieved the pain. A few days later they infiltrated the right frontal lobe, and this was followed by a complete clinical and roentgenologic cure. The authors called attention to two patients with hemorrhagic rectocolitis treated by the same method with good results. They believe that this confirms the corticovisceral theory of the mechanism of gastric ulcer suggested by Bykhow and Kourstine. Although Buccaille, the originator of this method of treatment, obtained good results in 80% of his patients with intractable pain, he stressed the precautions necessary to avoid an injury of the cortex during the operation.

Corticotropic Principle in the Human Placenta.—Although temporary remission during conception of a chronic progressive polyarthritides is common, no appreciable improvement could be obtained in rheumatic patients by giving the sex hormones in a filtrate of urine from a pregnant woman, transfusion of blood taken from a pregnant woman, or placental blood. E. Aron has been able to extract from the human placenta, by treating it with acetone, a corticotropic substance having the same physiological action as corticotropin (ACTH). It cannot yet be produced on a commercial scale.

Peptic Ulcer and Renal Lesions.—For several years Dr. Lambing and his co-workers have tried to find a relationship between peptic ulcer and experimental renal lesions. In the case of ulcer in white rats produced by pyloric ligation, the renal histological lesions are severe. The vascularization of this organ is greatly reduced and ischemia is frequently complete. The authors believe that, in animals submitted to experiments of this sort, renal lesions precede the gastric changes and may even favor them, probably by the secretion of a vasotropic factor formed in the ischemic renal parenchyma.

In the autopsies of five patients who died with gastric ulcer, Lenoir, Richet, and Jaquelin in 1920 found an unsuspected renal sclerosis. At a meeting of the Medical Society of Paris Hospitals in June, 1953, S. Bonfils, J. P. Hardouin, L. René, D. Hewitt, and A. Lambing reported on the histological findings in renal biopsy specimens obtained during 18 operations for peptic ulcer. The removal of such specimens has been shown to be harmless. Nine of the patients had gastric ulcers (five of which were on the lesser curvature), and nine had duodenal ulcers (seven of which were in patients less than 40 years of age; the others were between 40 and 60 years old). In 17 of these patients, chronic interstitial and glomerular nephritis and even tubular lesions showing acute and recent pathological changes were found. The authors stressed the fact that no renal tissue changes have been found in patients with biliary lithiasis, hemorrhagic rectocolitis, or hypertension.

Treatment of Anorexia Nervosa.—At the same meeting of the Medical Society of Paris Hospitals, J. Weil, J. Bernefeld, P. H. Paumelle, and Mlle. Josslow reported the treatment of a patient suffering from anorexia nervosa with isoniazid for one year. If the good results obtained can be duplicated in a larger series, ambulant treatment of these patients can be envisaged, and complete isolation should be necessary only in the severest cases. Even in these isoniazid, by modifying the thymic action, can be considered as an important adjuvant medication.

Arterio-capillaries in Arterial Hypertension.—At Toulouse Neurologic Clinic, Riser, Planque, and Dardennes have studied the arterio-capillary condition in hypertension and especially in the malignant phase. They concluded that, when the total mass of blood and that of the interstitial liquid are not ele-

vated in these patients, the capacity of the vascular system is lowered. On studying the head of a patient with hypertension, the authors stated that the temporal pressure of the retina was proportionally elevated to humoral pressure, causing meningeocerebral and retinal morbid changes. It is necessary to distinguish the local vascular lesions of the retina from exudations on the optic disk. A pathognomonic sign of malignant hypertension before the age of 60 would be the disappearance of the marginal capillary network.

Periodic Affections.—In 1951, Cattani and Mamou reported 14 patients suffering from a syndrome of unknown cause. Most of the patients were young persons who lived in Israel or North Africa. They suffered from an attack of articular rheumatism, fever, or severe abdominal pain, or they had all three at once. The symptoms lasted a few days or a few weeks and then disappeared until the next attack. Of their 14 patients, 10 were of the same family. All clinical and laboratory examinations were normal, except that for albuminuria. At a similar meeting in May, 1953, H. Mamou and A. Bernard reported two more cases of this disease. One patient was a 36-year-old man who was born in Paris and had never left France but whose parents were Algerian Israelites. For 25 years he had had attacks, sometimes resembling malaria and sometimes characterized by severe epigastric pain and vomiting. Treatment with acetarsone, chlortetracycline (Aureomycin), and other drugs gave no relief. The second patient had a lipid nephrosis, this being the major complication of his periodic affection. At the same meeting, F. Signier, M. Zara, J. L. Funck-Brentano, and G. Lagrue reported a patient with the rheumatic form of this periodic disease. Milliez reported two urban subjects and Ravina, two nonoriental subjects. Ravina noted a striking resemblance between this disease and periarthritis nodosa.

Complications of Corticotropin (ACTH) Therapy.—In *Therapie* of 1952 (pages 377-383), Coste reported the complications observed in treating 600 patients with corticotropin (ACTH) or cortisone, chief of which was hypertension. Edema occurs frequently and, contrary to the current opinion, during an advanced stage of the treatment. If the patient, as is often the case, has cardiac decompensation, this edema may endanger his life. Hypercholesterolemia may be observed during treatment with cortisone, for cortisone keeps the adrenal gland at rest. An increase in the toxicity of an infection, a cortisonic abscess at the point of injection, a pneumopathy, peptic ulcer, or the perforation of an already existing ulcer, the appendix, gallbladder, or intestine may occur. A thorough history by systems should be obtained before cortisone is given. Of the 600 patients, a severe psychosis developed in 5 during treatment. Minor complications include tachycardia, insomnia with euphoria, asthenia after prolonged treatment due to the catabolic effect of the hormone on protein metabolism and to a negative potassium balance, and diabetes without acidosis. If the patient was diabetic prior to treatment, the dose of insulin should be increased, because of the insulin resistance of patients with cortisonic diabetes. This insulin resistance disappears as soon as the hormonotherapy is stopped.

In the same issue, R. Turpin reported a rare case of diffuse hepatic steatosis in a 4-year-old child who for three months had had a subacute micrococcic (staphylococcic) infection. Micrococci were found in the urine, feces, and cutaneomucosal lesions. Even those antibiotics active against micrococci in vitro had no effect on the infection, so he was given 0.1 gm. of cortisone per day and oxytetracycline (Terramycin). Within 60 days he received 4.2 gm. of cortisone; his temperature came down; and his general condition was greatly improved. On the fourth day of treatment, his liver became enlarged and a needle biopsy showed a diffuse steatosis without cellular degeneration or interstitial changes. The humoral examination showed 3.05 gm. of total cholesterol, 2 gm. of esterified cholesterol, 12.4 gm. of lipids, and 3.7 gm. of phospholipids. The dose of cortisone was reduced and treatment stopped the 60th day. The child made a complete recovery.

Treatment of Sciatica.—At a meeting of the French League Against Rheumatism in May, 1953, Professor De Seze, and S. H. Jurmand reported the statistics of their unit in the Lariboisière Hospital covering 872 patients with sciatica. In 93, duration was of less than two months, in 50 it was of just two months, and in the rest it was of longer duration. Eleven per cent were operated on. At the same meeting, P. Ravault, Wertheimer, Vignon, and Michel reported on 70 patients with sciatica on whom they operated. Although 25% of these presented no roentgenologic signs, they were found to have herniation of the intervertebral disk. In 75% either a discoid hernia or discoid protrusion was found. Laminectomy was performed on 10%. The authors believe that operation for discoid hernia is justified, but they advise against rhizotomy.

Alcoholism.—At a meeting of the Congress Against Alcoholism in Paris in 1953, Professor Debré stated that the problem hinges not only on education and antialcoholism propaganda, but also on socioeconomic factors. Millions of Frenchmen derive their living from wine production and distillation, and, to fight efficiently against alcoholism, it is necessary to change the agricultural structure of the country. Instead of raising beets and grapes, cereal grains should be cultivated. In France, alcoholism is due chiefly to wine, which is considered as a national drink and not as an alcoholic beverage; but research has shown that this drink may lead to alcoholism. Professors G. Laroche and Tremolières discussed the food value of alcohol that contains 7 calories per gram. These calories are not used for muscular work and thermal regulation. E. Chabrol and A. Girauld reported that from 1906 to 1940 about 85 cases of cirrhosis of the liver a year have been treated in one hospital in Paris. There was a marked decrease during the war and a corresponding increase after the war. About 30% of these patients are women. They emphasized that alcoholism produces 60% of the cases of cirrhosis.

SWEDEN

Malpractice Suits.—"Läkarnas Ansvarighetsnämnd" (Doctors' Liability Committee) is an official body that deals with claims for compensation against doctors, and its rulings are usually final. In spite of the monotony with which such claims recur year after year, they make instructive reading for the younger generation of physicians. The following two cases, taken from the Dec. 4, 1953, issue of *Svenska Läkartidningen*, are good examples of a happy and an unhappy outcome. After a preliminary radiological screening a physician attempted to induce an artificial pneumothorax in a patient. At the first puncture the manometer showed no movement, and the physician therefore did not introduce any air. The patient complained of pain and of feeling giddy. At the second puncture, the manometer showed normal movements, and air was introduced into the pleural cavity. After spontaneous aspiration had proceeded for some time, the insufflation was completed under positive pressure. This provoked no complications at the moment, but, when the patient sat up, she suddenly felt very giddy, and, though she rallied somewhat after a short interval, her condition was such that she had to be hospitalized. After some initial improvement, her condition became stationary, with signs of involvement of the nervous system probably due to air embolism. The Doctors' Liability Committee ruled that this mishap cannot always be avoided and that the doctor concerned was not guilty of carelessness or neglect. The other case concerned a woman who died shortly after being given an injection of a local anesthetic in the course of an operation for goiter. The anesthetist, a nurse, gave her an injection of a 2% instead of a .1% solution of lidocaine, although she knew at the time that the solution ought to be of the weaker strength. As the surgeon failed to verify the strength of the solution, it was ruled that he, as well as the nurse, was to blame, and they were called on to share equally in the allotted responsibility. It is such a ruling as this that raises the prestige of the tribunal in question, as it refutes the old complaint that physicians side blindly with one another when the honor of their profession is impugned.

Salmonellosis and Poliomyelitis Epidemics.—A report presented to the Swedish Parliament in November, 1953, showed what a great strain salmonellosis and poliomyelitis imposed on the public health authorities in that year. There are about 30 different types of *Salmonella* in Sweden, but only *S. schottmülleri* is known to provoke serious typhoid-like disease. During the five year period 1948 to 1952 salmonellosis remained within modest limits with a maximum of 360 reported cases in one year and a minimum of 129 in another year. In the first five months of 1953 only 38 cases, scattered over the whole of the country, were reported. In the first half of June, 32 cases were reported, but, from June 16 to August 31, there were 7,717 cases, with a concentration in one or two counties, although the whole county was involved. There were 90 deaths from salmonellosis during this period. The incidence declined in September, and only 176 cases were reported in October. The shortage of hospital accommodation was so great at the height of the epidemic that more than half the patients had to be treated at home. No wholesale vaccination was undertaken, and it is doubtful if much would have been achieved by it at the time, because after vaccination immunity takes about three weeks to develop. This epidemic demonstrated the need for regional bacteriological laboratories. The Ministry of Health has recommended the creation of two such laboratories designed to cope with future outbreaks. This epidemic was still raging when a severe outbreak of poliomyelitis occurred. It had, however, been anticipated. During the previous decade an average of 1,550 cases per year had been reported, but, in 1953, by the end of Oct. 3,882 cases had already been reported, of which 2,247 were paralytic; 110 of the patients died. Gamma globulin was given on a very modest scale, for at the time the annual production of it in Sweden did not exceed 4,000 protective doses, and to have increased this supply effectively would have encroached on the available supply of blood for transfusions. With an adequate supply of poliomyelitis virus, it is hoped that in a couple of years vaccination of all susceptible persons against poliomyelitis will be possible. A program of poliomyelitis vaccination will be started this year.

Poisoning by Soporifics.—A revolution in the treatment of poisoning by soporifics is reported by Drs. Arne Aldman, Tore Ekstrand, and Bendt Eyrich, in *Svenska Läkartidningen* for Dec. 18, 1953. This report comes from the Serafimer Hospital, where in the period 1947 to 1952, inclusive, 87 men and 129 women were treated for this condition. In 147 of these the poisoning was slight; the patients were not quite unconscious on admission, or they awoke soon afterwards. In 67, however, the poisoning was serious enough to put the treatment given to a severe test. The exact amount of the soporific each patient had taken per kilo body weight was not found to be as accurate a measure of severity as the duration of unconsciousness in the hospital. Another factor influencing the prognosis was the length of the interval between the taking of a soporific and admission to the hospital. The 67 severely poisoned patients were treated differently in the period 1947 to 1950 than in the period 1951 to 1952. In the first period, the stomach was washed out and charcoal and magnesium sulphate were introduced into it. Afterward stimulants were given in an attempt to awaken the patient. In the second period, attention was concentrated on keeping the respiratory passages open and combating shock. Endotracheal intubation and endobronchial aspiration were applied on the most severely poisoned patients and they were repeatedly shifted from one side to another and given oxygen through a fine rubber tube when necessary. Shock was combated by blood or plasma transfusion under close control of the pulse and blood pressure. Fluid balance was assured by the intravenous injection of glucose or physiological saline solution or a solution of sodium bicarbonate, and the urinary output was checked every hour with the help of a self-retaining catheter. Of the 38 patients treated in the first period, 15 of whom were unconscious for more than 24 hours after admission to the hospital, 9 died, and of the 29 treated in the second period, 14 of whom were unconscious for more than 24 hours after admission to the hospital, only 2 died.

CORRESPONDENCE

MIDDLE MENINGEAL BLEEDING

To the Editor:—The emergency existing in middle meningeal bleeding often places the general surgeon in a position of greatest opportunity to save these patients. Any reasonable suggestion for improving his management of patients with this highly fatal lesion should be heeded. The paper in the Dec. 19, 1953, issue of *THE JOURNAL* by R. B. Raney, A. A. Raney, and E. W. Peterson calls attention to the utility of ligation of the external carotid artery in halting bleeding from a lacerated middle meningeal vessel, but it seems incorrect to me to suggest that this procedure be done before the clot is evacuated.

The alarming rapidity with which patients with this lesion can progress from apparent normality to death has led to the realization that, once the lesion is considered probable, it is mandatory that some immediately available physician with sufficient boldness make a temporal opening and evacuate the clot without delay, and without regard for whether he has ever done the operation before. (It is not especially difficult.) It has been recognized that conditions do not need to be "ideal" for the satisfactory performance of this operation. *Indeed, it must be done, no matter what the conditions.* There is not often enough time remaining for these patients to await the arrival of a neurosurgical specialist or to permit transfer to a hospital better prepared for cranial surgery than the one in which the diagnosis is made. It does not seem wise to say, suggest, or imply that any other course of action is preferable.

In essence, the paper mentioned describes a single instance of a man who, some 12 to 18 hours after suffering a skull fracture with middle meningeal laceration, became comatose and cyanotic, with a dilated fixed pupil and medullary decompensation. The external carotid artery was ligated, after which the intracranial clot was evacuated. No particular intracranial bleeding of an active sort seems to have been encountered, but the patient was transferred to another hospital for reexpansion of the dura by saline solution and wound closure. It hardly seems justified to credit the favorable outcome for this patient to the preliminary ligation of the carotid artery. It must have taken just about as long to ligate the carotid as it would have taken to begin the evacuation of the clot, and, in the 20 to 30 minutes elapsing from the beginning of either procedure, the increase in clot volume would be identical. As carried out, with carotid ligation taking precedence over the clot evacuation, the patient suffered brain compression during the additional minutes necessary to do the cranial operation after the carotid was tied. The patient survived because the clot was evacuated in the remaining time this patient had to live. Evacuation of the clot was perhaps attended by less free bleeding than would have been the case had the carotid not been tied. To attribute more than this to the effect of the ligation seems unwarranted.

A statement is made in the first paragraph of this paper that ligation of the carotid "enables the patient to be maintained in status quo until adequate neurosurgical treatment can be instituted." This statement is not justified by any of the facts presented or marshaled in the report or by any others of which I am aware. The statement actually seems to encourage the general surgeon to choose the neck ligation over the less familiar temporal craniectomy, with the expectation that a living patient will be on hand some unspecified time later when a neurosurgeon is secured to evacuate the clot. Actually, a patient in a condition such as described in the case report cannot have long to live whether the carotid is tied or not, as long as the clot volume is undiminished. Later on in the paper, the statement is made that after the carotid is ligated, "severe cerebral compression may then be relieved

by a simple trephine opening and suction," but it is not emphasized that this should be done immediately (as the authors did) and not some hours later in another hospital.

It is my belief that no consideration should be given to carotid ligation as the initial procedure in cases of middle meningeal bleeding, if any means are available to perforate the temporal squama and if a surgeon of sufficient understanding and courage is available to make the perforation. No consequence of infection or bleeding can be more disastrous than the consequences of being 30 minutes too late with a middle meningeal hematoma. Carotid ligation is of definite value as a secondary operation, if the surgeon finds himself unable to locate the bleeding vessel or to control it with a ligature, unremoved hemostat, or packing before a neurosurgeon arrives to complete this technical detail. Carotid ligation deserves more notice, particularly to encourage the general surgeon who may hesitate to open the head for fear that he may be unable to stop the bleeding once he has done so.

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USE OF FORCEPS

To the Editor:—The editorial on forceps on page 1450 of *THE JOURNAL*, Dec. 19, 1953, misses the most important statement in Jeffcoate's article, who, in turn, quoted Douglass and Kaltreider. There has been a tremendous effort by various committees, hospitals, and physicians to lower maternal mortality. Since *THE JOURNAL* has a wide circulation and since physicians will be influenced by the editorial, I am quite certain that they will attempt forceps and then perform a cesarean section, with a very definite increase in maternal mortality. Jeffcoate states trial forceps "could, of course, be abused and it has no place save in the hands of the expert working in hospital—the same qualifications which apply to the accepted practice of trial of labor." Douglass and Kaltreider state "It should be emphasized that trial forceps is a method of delivery which should be undertaken by a skilled obstetrician and not by the general practitioner who has had no specialty training." I feel that the competent obstetrician rarely needs to use trial forceps.

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REMOVAL OF CERUMEN

To the Editor:—On numerous occasions, patients present themselves complaining of reduced or absent hearing, vertigo, tinnitus, headache, or otalgia. Examination of these patients is essentially normal, with the exception of the presence of impacted cerumen in the auditory canal. The symptoms are due to the impinging of the cerumen on the drumhead. Removal of the cerumen is followed by alleviation of the complaints. At times, removal of the impacted cerumen presents a rather difficult task. Irrigation and instrumentation proves painful and at times fruitless in attempting to loosen the inspissated and hardened cerumen. I have used a simplified method of removing the impacted cerumen and it has proved successful and of minimal discomfort to the patient. I introduce into the ear canal a weak solution of a commercial detergent (All or Drefit), and this is permitted to remain in the ear over night. The following morning the cerumen is very soft and very easily removed by gentle irrigation. Often the cerumen is spontaneously expressed, and the patient need not return.

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COUNCIL ON MEDICAL SERVICE

This is the 12th in a series of studies made by the Committee on Indigent Care of the Council on Medical Service concerning local plans for medical care of the indigent. A general introduction to the series and the first of the Committee's studies (Erie County, New York) appeared in the May 10, 1952, issue of THE JOURNAL, pages 188-191. The 11th study (Vanderburgh County, Indiana) appeared in the Jan. 2, 1954, issue of THE JOURNAL, pages 83-84.

Medical Care for the Indigent in New York State

This is a study of medical services available to indigent and medically indigent residents of the state of New York. In 1950, the state had a population of 14,830,192, of whom 7,891,957 were residents of New York City. The state is highly industrialized and a wide variety of occupations are represented in its economy; agriculture employs a relatively small percentage of the state's population but is an important source of income in upstate New York.

ELIGIBLE POPULATION

Any person in the state who is demonstrably unable to meet the cost of needed medical services may obtain aid through his local welfare office. The comprehensive medical care program is, therefore, available to both those on assistance rolls and the medically indigent. Table 1 shows the number of clients receiving assistance from the various state programs during an average month.

TABLE 1.—Assistance Recipients, May, 1953

Program	New York City	Remainder of State	State Total
General assistance* (Home relief, veteran assistance)	56,020	19,070	75,090
Public assistance* (total).....	202,395	110,213	312,608†
Old age assistance.....	57,410	53,923	111,333
Aid to dependent children.....	119,586	45,126	164,712
Assistance to the blind.....	2,844	1,477	4,321
Aid to the disabled.....	22,555	9,687	32,242

* In New York, both local and federally aided programs are classified as "Public Assistance"; in this report, however, the term refers only to the four federally aided programs, in order to maintain uniformity with previous studies in this series.

† Includes 1,410 cases for hospitalization only; 2,635 for public home infirmary care only; 7,187 for hospitalization and assistance; and 811 for public home infirmary care and assistance.

ADMINISTRATION

New York's indigent care plan is administered at the local level with what is primarily supervisory activity at the state level. The general format was developed through the cooperation of the state welfare department, the state medical society, the local welfare authorities, and the local medical consultants; representatives of these groups continue to meet periodically as a joint committee to study and guide the program. The state's Department of Social Welfare is administered by a 15-member Board of Social Welfare appointed by the governor with the consent of the state senate. This board is chiefly a regulatory and advisory body; it establishes regulations for assistance administration, advises local welfare officers, approves or disapproves the various local welfare plans, administers those welfare programs for which the state alone is responsible, distributes financial reimbursement as prescribed by law, and regulates inspections of such institutions as hospitals and nursing homes. Local welfare districts that have not yet devised their own approved medical care plans operate and receive reimbursement under the state welfare department's general regulations, now in the process of revision. State supervision of these districts as well as of those that have plans is carried on through six area offices of the department. Much of the department's advice and guidance is provided by medical social workers from the headquarters and area offices who help local districts in evaluating social conditions, interpret medical policies, advise on difficult problems, and make continual studies of the medical welfare program with a view to improvements in care and administration.

Feeling that comprehensive medical service includes health promotion, disease prevention, and early detection of illness, treatment, and rehabilitation, state authorities have maintained a close liaison between the health and welfare departments. Since April, 1952, an assistant health commissioner has been assigned to head the Bureau of Medical Care of the Department of Social Welfare; he remains a member of the health department with access to its personnel, records, facilities, and guidance but is administratively responsible to the Commissioner of Social Welfare. This health officer develops the policies and procedures for the local welfare districts and assists them in developing their medical services; devises the standards by which the welfare department supervises and certifies hospitals, dispensaries, nursing homes, public homes, and private agencies; and coordinates state services to provide better care for the indigent. The Bureau of Medical Care, as an aid to local programs, allows the use of resources outside the particular district or outside the state to provide care when the individual case requires it and adequate local facilities are unavailable. The health officer also supervises the medical activities of the Commission for the Blind, the department's four training schools, the aged veterans' home, and the school for Indian children.

Legal responsibility for providing assistance to needy residents or transients is placed upon the 66 local public welfare districts. Eight of these are city districts (New York, Middletown, Oswego, Poughkeepsie, Auburn, Jamestown, Binghamton, and Newburgh), one is a town district, and the remaining 57 are county districts. County welfare districts may be administered on a county basis with service officers in the towns providing for emergency cases and giving information but with all other assistance applications forwarded to the county office; in the county-town system, town welfare officers can authorize and grant general assistance, including medical care, but public assistance applications must be referred to the county office. Cities included in county units may have the same type of administrative set-up as these towns. The welfare district is administered by a commissioner who determines the program of public assistance, including medical care, for his district, submits it to the state welfare department for approval, and is responsible for its operation once approved. The total assistance plan for a district must fulfill the following requirements: It must provide prompt access to benefits by applicants and recipients of assistance, standards of assistance and care, maintenance of adequate office facilities, and full-time service in those towns where home relief is a town charge. Needed services and assistance must be assured to those eligible without regard to the rate of reimbursement by the state, and the plan must include a description of the methods used in administering assistance in the district's towns and cities.

To achieve high quality medical care and a maximum of local autonomy in the medical part of these programs, five elements are considered essential: (1) definition and statement of scope of plan; (2) medical and social coordination; (3) medical and fiscal records; (4) integration with community medical and health resources, and (5) local medical direction and administration. Specific details vary from district to district, but, in general, the following methods are utilized to achieve these goals. A written statement is prepared by mutual agreement between welfare officers and medical personnel defining all phases of the medical program; medical needs are determined by physicians and the financial eligibility of applicants is determined by social workers, with joint planning when necessary. Complete records, both medical and financial, are kept for each patient as well as cost records by the type of service. The local welfare department keeps an inventory of all health facilities available for the community, whether federal, state, or local, so that all may be utilized; in establishing the program, the welfare commissioner meets with representatives of the medical and allied professions in the district and works out a plan to suit local conditions. When the plan has been approved by the state, a licensed physician is appointed as a medical consultant to direct the medical aspects of the plan, after consultation with the local medical society concerning his qualifications for the position. He establishes properly staffed central medical units to handle and refer all

requests for medical care. Through this close cooperation between local medical and welfare authorities, all available facilities are fully utilized, specific problems are equitably settled, and the program reflects and serves the needs of the particular community. (For a more detailed study of one of these local plans, consult the first report in this series, Erie County (Buffalo), New York, in the May 10, 1952, issue of *THE JOURNAL*, pages 188-191).

SERVICES AVAILABLE

The state Board of Social Welfare officially defines medical care for the indigent in the following terms: "... necessary preventive, diagnostic, corrective and curative service and supplies essential thereto, provided by qualified ... personnel ... for conditions ... that cause suffering, endanger life, result in illness or infirmity, interfere with his capacity for normal activities, or threaten some significant handicap." The local welfare districts, therefore, are required to provide a comprehensive program of medical services for assistance clients. Services generally available include physicians' care in home, office, and hospital by both general practitioners and specialists, all hospital services, nursing home and clinic services, home nursing and housekeeping services, ambulance service, laboratory facilities, drugs and appliances, eyeglasses, physiotherapy, and radium therapy. In general, it may be said that the indigent have available all medical services available in the welfare district. In most districts, the client has free choice of any physician in the community, although in two districts salaried physicians care for welfare cases. There are few limitations on service or on the professional personnel eligible to provide them; no limit is placed on hospital services, although all drugs must be prescribed by the attending physician.

PROVIDERS OF SERVICE

Any doctor of medicine or of osteopathy may participate in this program provided he is licensed by the state of New York to practice. Thus, with the exception of the two districts noted in which salaried physicians care for the indigent and a few in which the client must choose from a panel of co-operating physicians, there is almost unlimited freedom of choice of physician for the indigent patient. Specialist procedures may be undertaken by men recognized as specialists by their respective specialty boards or by physicians designated as specialists according to welfare department or workmen's compensation regulations. Any hospital may participate in the program if it meets the standards set by the American College of Surgeons and is certified periodically by the state welfare department; standards for participating nursing and convalescent homes have been established by the department. Any other professional personnel, including pharmacists and registered or practical nurses who are licensed by the state, may participate in the program; nursing care is provided by local private nurses, the Visiting Nurses' Association, and, in some cases, public health nurses. Thus, the indigent patient has available almost the entire range of medical personnel and facilities in the state, including some 459 hospitals, 88 dispensaries, 800 nursing homes, and 58 public homes certified by the welfare department.

PAYMENT FOR SERVICES

The state welfare department with the cooperation of the state medical society has devised a fee schedule for physicians' home and office calls and diagnostic and therapeutic procedures; if a local district pays the physician more than this schedule, the excess is not reimbursable from state funds. A general practitioner receives \$2.00 for office calls and \$3.00 for visits to the patient's home; nursing homes, boarding homes, private homes for the aged, and institutions for the blind. A specialist receives \$5.00 for initial calls, whether in his own office, the patient's home, or an institution; follow-up calls are \$3.00 at the physician's office and \$4.00 at the home or institution. General practitioners receive \$2.00 for hospital visits and specialists receive \$5.00 for initial hospital visits; however, if patients not on the assistance rolls receive free medical service at a particular hospital, no payment will be made to physicians for treatment of staff cases at that hos-

pital. For night calls \$1.00 is added to the fee and there is a mileage allowance of 35¢ per mile. Surgical procedures are reimbursed according to a correspondingly detailed fee schedule, which includes fees for surgical assistants.

Hospitals are reimbursed according to a flat per diem rate covering all hospital services. The method used to determine the maximum per diem rate was devised with the cooperation of the state hospital association and several agencies concerned with purchasing hospital care. Each hospital submits annual financial and statistical reports to the state welfare department. These figures are adjusted to eliminate items not directly related to inpatient care, such as depreciation on equipment and buildings; from the adjusted figures, each hospital's cost of operation per patient-day is calculated. When the hospital has ward beds only or private and semiprivate accommodations only, a further adjustment is made to approximate more closely the per diem cost of ward care. For the purpose of computing hospital rates, the state has been divided into regions, and hospitals in a given region are grouped by the number of beds—less than 50, 50 to 199, and 200 or more. Adjusted per diem costs for all hospitals of a given size in a region are averaged; per diem payment to an individual hospital may not exceed the average cost for its group by more than 10%. Laboratory services are reimbursed according to a detailed fee schedule as are prescriptions for eyeglasses. Payment for home nursing services is made according to local rates. Payment for drugs is made according to a formula based on the wholesale cost of drug and container: when this totals \$1.00 or less, the payment is the wholesale

TABLE 2.—1952 Assistance Costs

Program	Cost	Source of Funds		
		Federal	State	Local
General assistance (Home relief).....	\$ 41,304,940	\$.....	\$33,886,420	\$ 7,918,520
Public assistance.....	197,582,159	84,222,345	73,162,068	41,197,746
Old age assistance.....	91,732,076	40,022,082	31,898,960	19,811,034
Aid to dependent children.....	74,597,025	31,562,918	28,307,983	14,666,724
Assistance to blind.....	3,865,315	1,546,246	1,470,802	848,267
Aid to disabled.....	27,387,143	11,091,099	10,424,323	5,871,721
Totals.....	\$238,887,099	\$84,222,345	\$105,548,488	\$49,116,266

cost plus $\frac{2}{3}$ with a 50¢ minimum; when this is over \$1.00, the payment is the wholesale cost plus $\frac{1}{2}$. Payment for compounded prescriptions is based on a comprehensive fee schedule, and "over the counter" drugs are reimbursable at retail prices. Sick room supplies are reimbursed at cost plus 50%.

COSTS AND FINANCIAL SUPPORT

Under a new welfare formula, inaugurated Jan. 1, 1954, the state shares in the cost of all welfare programs authorized by the state social welfare laws; federal aid grants for public assistance are allocated to the local districts and all remaining costs of authorized welfare programs are shared equally by state and locality. This provides state support for the care of the following groups, previously local charges only: wards of city or county welfare departments, indigents in public homes, public home infirmaries, and municipal lodging houses and shelters, hospitalized home relief clients, and children under foster care. The previous formula called for 80% underwriting of costs by the state for the home relief program; the new rate of contribution is 50%. However, the state will pay 80% of costs for the number of home relief clients in excess of 1% of the district's population, if these clients should exceed this number. The formula for support of the state tuberculosis program has also been revised, and state support for the medical care involved has been increased.

The following table shows the expenditure for each of the assistance programs during 1952 and the source of the funds utilized.

The amount of assistance expenditures in New York reached a peak in 1950 and decreased slightly in 1951 and 1952; however, the percent of total assistance costs and the amount expended for medical services have increased steadily since

1947. In that year, about seven million dollars were spent on medical services, approximately 4.2% of total costs; in 1952, medical costs reached 23.5 million dollars, 10.1% of the total. About two-thirds of the medical expenditures annually are for hospital services, while the remaining one-third provides professional services, drugs, and other medical items. In 1952, approximately \$40.21 was spent for hospital services per eligible assistance client and \$20.47 for other medical services.

MEDICAL SOCIETY RELATIONSHIP

The Medical Society of the State of New York has appointed a special liaison committee to meet with the state welfare department; the committee assists in improving medical care for welfare clients and interprets the welfare policies to the medical profession. The total program has had the aid and cooperation of the medical society, both in devising the most efficient methods of utilizing medical personnel and facilities and in obtaining the support of the individual physician. The degree of participation by local county medical societies, of course, varies from district to district. The most successful programs seem to be those in which county societies have become interested and active participants. The fact that medical care provided in these local programs must be under the supervision of a physician in itself fosters cooperation with local medical societies. Some societies have established medical care advisory committees that work with the welfare department and the medical supervisor, advising on specific problems, the formulation of medical care policy, and the utilization of all local health facilities, and interpreting the program to the society members. Such committees frequently also serve to review complaints and control abuses of the program. In general, the medical societies seem to be active and interested participants in the indigent care programs throughout the state.

SUMMARY

The New York state indigent care program is locally administered through city, county, and town welfare districts; each district devises its own plan of care and the state welfare department acts primarily in a supervisory capacity. All plans, however, must meet certain requirements of the state welfare authorities so that, in general, the plans provide approximately the same benefits. All assistance clients are eligible for the same medical services, and medically indigent citizens of a welfare district are eligible for the same benefits as those on the assistance rolls. Since the plans attempt to utilize all suitable medical facilities and personnel in the district, it may be said that welfare clients have available the same type of medical care as nonindigent residents of the community. Two districts employ salaried physicians to care for the welfare clients and several have panels of participating physicians; aside from these, however, most plans allow the client complete freedom of choice of physician. Any facility may be used that meets the standards of the state welfare department and every medical service will be provided that the physician deems medically necessary; the plans utilize general practitioners and specialists and provide care in the patient's home, the doctor's office, the hospital, and in clinics, nursing homes, and convalescent homes. Home nursing is provided when necessary. Physicians are ordinarily paid according to detailed fee schedules, state reimbursement to local districts being based on a state-wide schedule established in cooperation with the state medical association. Hospitals are paid a flat rate per diem covering all services, which is based on the cost of actual operation of the individual hospital and of other hospitals of the same size located in the same region of the state. Beginning Jan. 1, 1954, the state will share in the costs of all welfare programs authorized by the state's social welfare laws, including local general assistance programs.

The administrative structure permits maintenance of uniform standards of eligibility and services yet leaves local organization flexible so that the district may devise a plan to meet its own individual needs and to make full use of its own medical facilities. The plan seems effective in providing good medical care, suited to local conditions, with a minimum of governmental "red tape."

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Naturopathy: Naturopaths Required to Be Licensed Even in Absence of Separate Licensing Act.—This was a declaratory judgment action to determine the rights of the plaintiffs to practice naturopathy without first securing a license from either the board of medical examiners, the board of osteopathic examiners, or the board of chiropractic examiners. From a judgment in favor of the defendants, the plaintiffs appealed to the district court of appeal, second district, division 3, California.

The plaintiffs, graduate naturopaths and chiropractors, asserted that the practice of naturopathy is beneficial and not harmful, that naturopaths cannot obtain a license in California under existing laws, but that naturopaths are nevertheless subject to prosecution if they practice without a license. They therefore contended that naturopaths are the subject of unjust and unconstitutional discrimination. The defendants are the boards of medical examiners, osteopathic examiners, and chiropractic examiners. They contended that naturopaths can be licensed by either the medical, osteopathic, or chiropractic boards and that licentiates of such boards are permitted to employ naturopathic methods in their practices if they desire to do so. Thus, they argued, naturopathy is regulated, not prohibited.

The court admitted that there is no law in California under which plaintiffs may be licensed as naturopaths. The Business and Professions Code, however, provides: "Any person who practices or attempts to practice, or who advertises or holds himself out as practicing, any system or mode of treating the sick or afflicted in this state, or who diagnoses, treats, operates for, or prescribes for any ailment, blemish, deformity, disease, disfigurement, disorder, injury, or other mental or physical condition of any person, without having at the time of so doing a valid unrevoked certificate as provided in this chapter, is guilty of a misdemeanor." The use of natural methods of healing is not forbidden by law. Physicians and surgeons, osteopaths, chiropractors, and all those who hold licenses as drugless practitioners may use them. It is of common knowledge that nature is the indispensable healing agency and that practitioners of medicine and surgery, osteopathy, and chiropractic make use of the curative qualities of light, air, water, rest, diet, and physical and mental culture, in connection with the agencies peculiar to their several systems of healing. The several medical practice acts have never had application to treatment by prayer or the practice of religion, but with this exception they have forbidden the practice of any of the healing arts by those who were unlicensed. Plaintiffs, being unlicensed, may not under the present law practice at all. They must become licensed either as physicians and surgeons (which now includes osteopaths) or as chiropractors in order to employ their methods, although even then they cannot practice naturopathy in its true sense, inasmuch as they cannot use the title "naturopath" or "N.D." nor hold themselves out as such. We do not discover in this situation a sound basis for the claim of unreasonable discrimination with respect to these plaintiffs, said the court.

The Business and Professions Code provides "Nothing in this chapter shall be construed so as to discriminate against any particular school of medicine or surgery, or any other treatment." This provision against discrimination, said the court, has been the law, substantially in its present form, since 1907. It applies primarily to administration of the act. No illegal discrimination against naturopaths has been shown.

Accordingly the judgment of the trial court finding that the plaintiffs were required to be licensed by either the board of medical examiners, the board of osteopathic examiners, or the board of chiropractic examiners was affirmed. *Oosterveen v. Board of Medical Examiners*, 246 P. (2d) 136 (California, 1952).

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Internal Medicine, Chicago

92:603-766 (Nov.) 1953

- *Diffuse Interstitial Fibrosis of Lungs: Form of Diffuse Interstitial Angiosis and Reticulosis of Lungs. A. Golden and T. T. Bronk.—p. 606.
- Oral Use of Hydrocortisone (Compound F) in Treatment of Sprue. D. Adlersberg, H. Colcher and C.-I. Wang.—p. 615.
- Treatment of Leukemia with Triethylene Thiophosphoramide (Thio-Tepa): Preliminary Results in Experimental and Clinical Leukemia. H. Shay, C. Zarafonitis, N. Smith and others.—p. 628.
- *Phenylbutazone: Further Clinical Evaluation. W. C. Kuzell, R. W. Schaffarick, W. E. Naugler and others.—p. 646.
- Gastrointestinal Hemorrhage as Complication of Poliomyelitis. R. J. Hoxsey.—p. 662.
- Glucagon, Hyperglycemic Agent in Pancreatic Extracts: Possible Factor in Certain Types of Diabetes. I. J. Pincus and J. Z. Rutman.—p. 666.
- *Incidence of Hepatitis Following Use of Pooled Plasma: Follow-Up Study of 587 Korean Casualties. V. M. Sborov, B. Giges and J. D. Mann.—p. 678.
- Osteoblasts and Osteoclasts in Bone Marrow Aspiration: Previously Undescribed Cell Findings in Paget's Disease (Osteitis Deformans). M. A. Rubinstein, A. Smelin and A. L. Freedman.—p. 684.
- Familial Clubbing of Fingers and Toes. J. H. Talbott and W. R. Montgomery Jr.—p. 697.
- Aortic Arch Syndromes: Diminished or Absent Pulses in Arteries Arising from Arch of Aorta. R. S. Ross and V. A. McKusick.—p. 701.

Interstitial Fibrosis of Lungs.—The literature relevant to diffuse bilateral interstitial fibrosis of the lungs is reviewed, and three new cases are reported. The disease is one of adult life; its etiology is unknown. It develops progressively, with long duration of symptoms. These include dyspnea, cyanosis, and cough, accompanied by a latent tendency toward the development of cor pulmonale and polycythemia. Pathologically, the condition is characterized by diffuse alveolar wall hypertrophy on the basis of marked capillary proliferation. This hyperplasia is limited to the alveolar walls and accounts for their thickness. The addition of collagen in such walls is variable; it may be absent and is usually focal rather than widespread. The disease originally designated as acute interstitial fibrosis of the lungs proves to be progressive diffuse alveolar hypertrophy of a specific reticuloangiomatic type.

Phenylbutazone.—Phenylbutazone (Butazolidin) was administered to 800 patients with various diseases during the period August, 1951-April, 1953. This report deals with phenylbutazone used alone. (It was formerly used as Butapyrin, a combination of equal parts of aminopyrine and phenylbutazone.) The clinical usefulness of phenylbutazone was evaluated by relating therapeutic response to toxicity. On this basis, it was found to be much more useful in gout than in any other disease in which it was studied. The authors' opinion is that it is the drug of choice in the treatment of this disease. Phenylbutazone also was clinically useful to a lesser extent in psoriasis with arthritis, ankylosing spondylitis, rheumatoid arthritis, and painful shoulder. Its use in malum coxae senilis, osteoarthritis, osteoporosis, and mixed arthritis is limited by a greater incidence of toxicity without a commensurate degree of clinical improvement. Among the 800 patients, 321 (40%) exhibited 457 untoward side-effects. It was necessary to discontinue medication because of toxicity in 121 patients (15%). The most frequently encountered reactions included water retention,

nausea, rash, epigastric pain, vertigo, and stomatitis. Unusual severe reactions included peptic ulcer activation (1%) with bleeding in three patients (0.37%), hepatitis (0.25%), agranulocytosis (0.6%), thrombocytopenia (0.12%), and purpura without thrombocytopenia (0.5%). Toxic side-effects were seen more frequently in women than in men.

Hepatitis and Pooled Plasma.—A study of the incidence of hepatitis was made in 587 patients who were wounded in Korea. Of these, 255 received transfusions of blood and plasma and 332, of blood alone. The incidence of hepatitis with jaundice in the first group was 56 (21.9%) as compared with 12 (3.6%) in the second. The mean incubation period of the hepatitis in these 68 patients was 90.3 ± 11.7 days. This is presumed to indicate that the disease involved was long-incubation-period hepatitis (serum hepatitis) and not short-incubation-period hepatitis (epidemic hepatitis). Some of the blood and plasma used in the transfusions had been specially treated for the hepatitis virus by irradiation with ultraviolet light; but comparative results of treatment with both types of material showed no significant capacity of the irradiated material to prevent the occurrence of hepatitis.

A.M.A. Arch. Pathology, Chicago

56:437-556 (Nov.) 1953

- Perosis: Epiphyseal Cartilage in Choline and Manganese Deficiencies in the Chick. S. B. Wolbach and D. M. Hegsted.—p. 437.
- Blood Changes in Man Following Death Due to Drowning: With Comments on Tests for Drowning. S. H. Durlacher, H. C. Freimuth and H. E. Swan Jr.—p. 454.
- Cancer Associated with Ovarian Stromal Hyperplasia. S. C. Sommers and O. M. Lombard.—p. 462.
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- *Morphology of Kidney in Morbus Caeruleus. H. Meessen and M. A. Litton.—p. 480.
- Leontiasis Ossea, Slipped Epiphyses, and Granulosa Cell Tumor of Testis with Renal Disease: Report of Case with Autopsy Findings. J. Cohen and I. Diamond.—p. 488.
- Coarctation of Celiac Artery. P. G. Piper.—p. 501.
- A Uterus in a Man. R. W. Prichard.—p. 505.
- Pathology of Epidemic Typhus: Report of Fatal Cases Studied by United States of America Typhus Commission in Cairo, Egypt, During 1943-1945. Committee on Pathology, Division of Medical Sciences, National Research Council.—p. 512.

Morphology of Kidney in Morbus Caeruleus.—Meessen and Litton apply the term morbus caeruleus to the group of congenital heart lesions with cyanosis and persisting venous-arterial shunt. The reduction in oxygen tension and the presence of reduced hemoglobin are responsible for the cyanosis. Fallot's tetralogy with its variations is found in most of these patients. The authors examined the kidneys of patients with morbus caeruleus for morphological changes resulting from the chronic hypoxia; 28 kidneys were studied. Capillary loop ectasia with resulting glomerular enlargement is characteristic of the morbus caeruleus kidney. Vasa afferentia are widened, and the draining veins are dilated. Fibrous obliteration of glomeruli, partial obliteration of capillary loops, and widening of the interstitial tissue were also observed. The chronic hypoxia of morbus caeruleus did not result in the destruction of kidney parenchyma. The authors believe that in the renal changes they observed the chronic hypoxia and the increase of carbon dioxide are the chief factors. Consequent dilation of the glomerular arterioles and widening of the vasa afferentia facilitate the glomerular circulation. The adaptation to the chronic hypoxia is accomplished by capillary loop ectasia, which results in glomerular enlargement. These local tissue adaptations in the kidney and the developing polycythemia fully compensate for the chronic hypoxia. Thus no damage due to oxygen deficiency results. The tubular epithelium was always intact. The authors

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Titles marked with an asterisk (*) are abstracted.

recall that Scott and Elliot investigated the effects of anoxemia and polycythemia on renal hemodynamics and excretory functions in 19 patients with congenital malformations of the heart and cyanosis. These investigators found that the glomerular filtration rates were normal despite depressed renal plasma flow. The renal blood flows were above normal in most of the patients. Meessen and Litton believe that the clinical observations of Scott and Elliot are in keeping with their own observation of glomerular enlargement and resulting increase of available surface for filtration. The widening of the vasa afferentia would also facilitate the glomerular circulation. They found no specific anatomic evidence to support an increase in postglomerular resistance assumed by Scott and Elliot.

American Heart Journal, St. Louis

46:639-798 (Nov.) 1953

- Mitral Stenosis and Cor Pulmonale. A. C. Taquini, B. B. Lozada, R. J. Donaldson and others.—p. 639.
 Congenital Anomalies of Mitral Valve: Two Cases Associated with Long Survival. J. T. Prior.—p. 649.
 *Anatomic Variations in Tetralogy of Fallot. T. G. Baffes, F. R. Johnson, W. J. Potts and S. Gibson.—p. 657.
 Electrocardiogram in Congenital Heart Disease and Mitral Stenosis: Correlation of Electrocardiographic Patterns with Right Ventricular Pressure, Flow, and Work. R. S. Cosby, D. C. Levinson, S. P. Dimitroff and others.—p. 670.
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 Ventricular Fibrillation Elicited by Focal Cooling. D. Scherf, S. Blumenfeld and R. Terranova.—p. 741.
 *Preliminary Observations of Rauwolfia-Hexamethonium Combined Therapy of Hypertension. R. V. Ford and J. H. Moyer.—p. 754.
 Echinococcosis of Heart. A. K. Kurban, A. I. Shafik, S. A. Attar and G. A. Dragatsi.—p. 764.

Variations in Tetralogy of Fallot.—Of 350 postmortem specimens of congenital malformations of the heart at the Children's Memorial Hospital in Chicago, 42 fulfilled the criteria for tetralogy of Fallot and were evaluated with respect to the relative applicability of intracardiac infundibular resection and the shunt operations. Twelve specimens with atresia of the pulmonary valve, the infundibulum, or the entire main pulmonary artery were not studied extensively because at the present time there is agreement that a systemic pulmonary shunt is the only possible procedure in this type of malformation; 4 of the 12 had an adequate pulmonary arterial segment to permit such a shunt operation. The remaining 30 hearts had patent pulmonary arteries associated with stenosis of the infundibulum, and either pulmonary valvulotomy or systemic pulmonary anastomosis would have had to be considered in these hearts; they were studied extensively and divided into five groups, each of which consisted of a variable number of hearts with relatively similar infundibular pathology. Eight specimens (19%) belonged to the group with "band stenosis" in which a thin fibromuscular band at the ostium of the infundibulum associated with a dilated infundibular chamber above the point of obstruction made intracardiac resection of the infundibular stenosis feasible. The hearts in this group were taken from older patients and had the least severe degree of overriding. The remaining 22 hearts belonged to the four other groups and were probably not amenable to intracardiac surgery at this time. Ten, or one-third, of the 30 hearts with patent pulmonary arteries had valvular stenosis accompanied by infundibular deformity in all and associated hypoplastic pulmonary arteries in 8. Most specimens had moderate or severe overriding of the aorta. Thirty-four (82%) of the 42 hearts were taken from children less than three years of age. These specimens probably represented more severe types of tetralogy of Fallot. Studies made by other workers with findings different from those of the authors, were done mainly on older children and adults. The difference in ages may account, in part, for the difference in pathological observations.

Alseroxylon-Hexamethonium for Hypertension.—Alseroxylon (Rauwiloid), an extract of *Rauwolfia serpentina*, was used in combination with hexamethonium for the treatment of 25 patients between the ages of 32 and 71 with essential hypertension. Nineteen of the patients were first given hexamethonium orally starting with small doses of 250 mg. four times per day and then progressively increasing the dose in an incremental fashion until an optimal response was obtained. Most of these patients were observed for six months or longer before the addition of alseroxylon. When alseroxylon was added, it was also started in small doses, 2 mg. four times per day, and the dose was progressively increased by increments. The dose was maintained at 32 mg. daily in most patients, although current data seem to indicate that 8 to 12 mg. (4 to 6 tablets) per day is adequate and that little additional hypotensive effect may be produced by the larger dose. Alseroxylon was used as the initial drug in six patients, and a period of at least three months elapsed before hexamethonium was added to the therapeutic regimen, thus allowing to evaluate the hypotensive response to alseroxylon alone. The drugs were taken four times daily, with meals and at bedtime. In the six patients to whom alseroxylon was administered initially, there was a decrease in the average mean blood pressure (diastolic plus one-third of the pulse pressure) from 159 (208/134) to 137 (183/113) mm. Hg, but after hexamethonium was added there was a much greater reduction, namely, to 104 (147/83) mm. Hg. In the 19 patients in whom therapy was initiated with hexamethonium, there was an average reduction in mean blood pressure from 150 (199/125) to 104 (136/88) mm. Hg; another slight drop to 97 (127/83) occurred when alseroxylon was added. There was also a decrease in pulse rate after adding alseroxylon that was not observed when hexamethonium was given alone. Twenty (80%) of the 25 patients treated became normotensive during combined alseroxylon-hexamethonium therapy; and 25 (100%) had a decrease in mean blood pressure of at least 20 mm. Hg. There was also a reduction in the frequency and severity of the unpleasant side-reactions that were previously observed when hexamethonium was used alone, and the beneficial side-effects of alseroxylon, such as increased appetite and sedation without somnolence, persisted. The dose of hexamethonium could be reduced on combined therapy with alseroxylon, and the blood pressure was reduced further and was better stabilized. Alseroxylon could be used initially in most patients with severe essential hypertension; those not responding in six to eight weeks should also be given hexamethonium.

American Journal of Medical Sciences, Philadelphia

226:477-596 (Nov.) 1953

- Intramuscular Veriloid (Aqueous Solution) as Hypotensive Agent. J. H. Moyer and I. Johnson.—p. 477.
 *Relative Efficacy of Erythromycin (Ilotycin) and of Penicillin in Treatment of Pneumococcal Lobar Pneumonia. R. Austrian, R. Rosenblum, M. Metz and others.—p. 487.
 Antibiotic Prophylaxis in Chronic Congestive Failure. L. V. McVay, Jr., D. H. Sprunt and T. N. Stern.—p. 491.
 *New Approach to Treatment of Brucellosis. M. R. Castaneda and C. Carrillo-Cardenas.—p. 504.
 *Selective Pituitary Failure: Example Characterized by Deficient ACTH and Gonadotrophin Secretion with Intact Thyrotrophin Secretion. W. O. Maddock, R. B. Leach, S. P. Klein and G. B. Myers.—p. 509.
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 Clinical and Laboratory Studies of Infections Due to *Pseudomonas aeruginosa* and *Pseudomonas* Species. C. P. Erwin, B. A. Waishren and R. Kruse.—p. 525.
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 Electrocardiographic Pattern Simulating Acute Myocardial Injury. H. L. Osher and L. Wolff.—p. 541.
 Effect of Prisciline upon Normal and Diabetic Glycemia. M. G. Goldner and H. Zarowitz.—p. 546.
 Chemotherapy of Tuberculosis. E. A. Riley.—p. 552.
 Protection from Roentgen Rays. R. H. Morgan.—p. 578.

Erythromycin and Penicillin in Pneumococcal Lobar Pneumonia.—Of 50 patients with pneumococcal lobar pneumonia, 24 were given erythromycin (Ilotycin) and 26 received penicillin. Erythromycin was administered orally in doses of 400 mg. on

admission and 400 mg. every six hours thereafter for 72 hours. Penicillin was administered intramuscularly in doses of 300,000 units of the aqueous sodium salt on admission and every 12 hours thereafter for 72 hours. The infections were considered to be of comparable severity in both groups except for the higher incidence of bacteremia among the patients treated with erythromycin. There were three deaths; one of the two patients treated with erythromycin who died was in shock and was given penicillin concomitantly; the third patient received penicillin alone. Complications occurred with equal frequency in both groups. No untoward reactions were noted that could be ascribed with certainty to either chemotherapeutic agent. Erythromycin did not give rise to gastrointestinal symptoms. Thus results obtained with the two antibacterial agents were similar and suggest that erythromycin is a suitable drug for the treatment of pneumococcal lobar pneumonia. Limitations of erythromycin are: it exerts antibacterial activity against only a limited number of bacterial species; a clinically significant degree of resistance to erythromycin may develop *in vitro*; its relative insolubility and the unavailability of a preparation for parenteral administration that may be required in critically ill patients. Erythromycin may be reserved as an alternative form of treatment in pneumococcal lobar pneumonia, its principal value being in the fact that it may be administered to patients previously sensitized to penicillin.

New Approach to Treatment of Brucellosis.—Of 139 patients with brucellosis caused by *Brucella mellitensis*, 44 with duration of the disease from 8 days to two years and 24 with duration of the disease from 15 days to 8 months were treated with subcutaneous injections of amphoteric oxytetracycline (Terramycin) in amounts not larger than 160 mg. per week. The remaining 71 patients were divided in two groups of 44 and 27 patients with similar duration of the disease and served as controls. The course of the bacteremia was considered the only reliable criterion for the evaluation of the results. While the course of bacteremia was uninterrupted for a period of two to three months in the control patients, positive blood cultures were obtained from only 18% of the treated patients 15 days after the beginning of treatment, and subsequent cultures became negative. The uniformity of the results left no doubt that this striking difference in the course of bacteremia in the treated and in the control patients was due to the small doses of precipitated oxytetracycline injected into the thick subcutaneous layers of the gluteal region. Treatment of brucellosis with relatively insoluble particles of oxytetracycline was based on the concept that because of the physicochemical properties of oxytetracycline a minor fraction of the absorbed or injected drug might precipitate in the plasma due to its low solubility in neutral reaction; the precipitated particles might be phagocytized and eventually reach the lymph nodes, the spleen, and other organs. Since reticuloendothelial cells are considered choice hosts of *Brucella*, there would be a possibility that particles of the antibiotic might come in contact with the parasite either by direct phagocytosis or phagocytosis of leukocytes carrying these particles. The results obtained in the authors' patients seem to support this hypothesis.

Selective Pituitary Failure.—The term selective pituitary failure is suggested by Maddock and associates for the lack of secretion of one or more, but not all, anterior pituitary tropic hormones, as contrasted with panhypopituitarism in which there is uniform depression in the secretion of all pituitary tropic hormones. The authors describe a type of selective pituitary failure observed in four men between the ages of 38 and 58 in whom failure of gonadotropin and adrenocorticotropin secretion was associated with evidence of intact thyrotropin secretion. Deficient gonadotropin secretion was manifested by clinical evidence of pronounced hypogonadism, biopsy evidence of testicular atrophy, and laboratory evidence of low urinary gonadotropin excretion. Deficient corticotropin secretion was demonstrated by clinical and laboratory evidence of adrenal cortical insufficiency that responded in an initially delayed but eventually satisfactory manner to treatment with corticotropin (ACTH). Adequate thyrotropin secretion was manifested by clinical and laboratory evidence of normal thyroid function. The duration of the disease varied from 6 to 24 years, yet each

patient responded adequately to the administration of corticotropin. Irreversible testicular damage, however, prevented a response to large doses of chorionic gonadotropin (2,000 to 5,000 units given intramuscularly daily for 48 days) necessitating substitution therapy with testosterone propionate (25 mg. intramuscularly daily). It can be expected that although corticotropin given initially in daily doses of 25 to 50 units in aqueous vehicles intramuscularly and in daily doses of 10 units in either aqueous or long-acting vehicles for maintenance treatment will correct the adrenal cortical deficiency, testosterone propionate substitution therapy, rather than stimulation with gonadotropins, will be necessary to correct the androgen deficiency in most long-standing cases of hypopituitarism.

American Journal of Orthopsychiatry, New York

23:667-888 (Oct.) 1953. Partial Index

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- Concept of Education in Residential Treatment of Emotionally Disturbed Children. O. Krug.—p. 691.
- Educational Procedures in a Resident Setting. J. E. Robinson.—p. 697.
- Proposed Technique for Evaluation of Psychotherapy. P. W. Morse.—p. 716.
- Comparison of Rorschach Retests with Behavior Changes in Group of Emotionally Disturbed Children. J. W. Kessler and C. M. Wolfenstein.—p. 740.
- Impact of Shift in Psychological Constellation of Family on Treatment of Stuttering Boy. H. M. Glauber.—p. 755.
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Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

70:705-882 (Nov.) 1953

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- Hemangio-Endothelioma: Case Report. I. Deutsch.—p. 766.
- *Bronchogenic Cysts: Anomalies Resulting from Maldevelopment of Primitive Foregut and Midgut. R. F. Miller, M. Graub and E. T. Pashuck.—p. 771.
- *Tricuspid Insufficiency: Observations Based on Angiocardiography and Cardiac Catheterization in 12 Patients. C. T. Dotter, D. S. Lukas and I. Steinberg.—p. 786.
- Thoracic Renal Ectopia. H. S. Weens and M. H. Johnston.—p. 793.
- Peptic Ulcer in Aged and Gastric Carcinoma in Their Relationship to Arteriosclerosis: Roentgenological Study. A. Elkeles.—p. 797.
- *Gas in Intervertebral Discs. J. T. Marr.—p. 804.
- Tumors in One of Homologous Twins: Neuroblastoma; Fibromyxosarcoma in Infant Negro Twins. H. Charache.—p. 810.
- Quantitative Estimation of Radioactive Isotopes by Radioautography. N. J. Nadler.—p. 814.
- New Method of Stereoscopic Roentgenography: "Twist Stereo" Method. E. Gordon and J. Sauro.—p. 824.
- Efficiency of Red Goggles. F. A. Riebel.—p. 827.

Bronchogenic Cysts.—The occurrence of ectopic teratism is reported in four men between the ages of 22 and 29 and in five infants, three boys and two girls. In several of these nine patients gross anatomic defects were recognized clinically as well as roentgenographically, but the etiological nature of the deformity was not suspected prior to either operative intervention or postmortem examination. Of the four adult patients, one had a bronchogenic cyst intimately attached to the superior vena cava, one a large bronchogenic cyst occupying the posterior mediastinum and obliterating the right border of the heart, one a bronchogenic cyst communicating with the right stem bronchus through a small caliber rudimentary bronchus indicated by an air-fluid level, and one an intramural, submucosal type of defect in the distal end of the esophagus produced by an embedded bronchogenic cyst. Of the five infants, one had a large paratracheal bronchogenic cyst, one a thymoma extending into the upper right chest cavity that roentgenographically could not be differentiated from a cyst, one a cyst impregnated with calcium salts that had inspissated a small

duplication of the upper jejunum, one an upper extrinsic pressure defect produced by a duplicate stomach and a lower defect produced by an abdominal bronchogenic cyst, and one a bronchogenic cyst in the infraclavicular region on the anterior chest wall. Since the roentgen signs for accurately establishing the diagnosis of "cyst" are meager, the type of cyst (uncomplicated) can be determined only by histopathological study of its wall or indirectly through examination of its contents. In adults the differentiation of cysts from malignant or potentially malignant tumors is so difficult that excision is both desirable and advisable. In infants and children, gastric cysts, if at all productive of symptoms, are usually rather rapidly fatal unless removed. The diagnosis of the type of cyst is scarcely necessary since almost all cysts of the mediastinum may give rise to fatal complications and should therefore be removed surgically unless there is a serious contraindication.

Tricuspid Insufficiency.—Insufficiency of the tricuspid valve was demonstrated by angiocardigraphy and cardiac catheterization in 12 patients, in 6 of whom a clinical diagnosis of tricuspid insufficiency had been made. All of these patients had chronic rheumatic mitral stenosis, all had auricular fibrillation and several were studied preliminary to surgical intervention on the mitral valve. Tricuspid insufficiency is commonly associated with mitral stenosis of a degree sufficient to warrant consideration of mitral commissurotomy, and it is not necessarily regarded as a contraindication to this operation. Cardiac catheterization offers the most accurate means of establishing the diagnosis. Angiocardigraphy with sodium acetrizoate (Urokon Sodium 70%) as the preferred contrast medium, reveals dilatation of the superior vena cava and the right atrium and occasionally demonstrates a filling defect in films exposed during early opacification of the right atrium. This is due to regurgitation of nonopacified right ventricular blood through the incompetent tricuspid valve. Multiple exposure studies facilitate the differentiation of this finding from changes that are the result of tumor or thrombus within the right atrium.

Gas in Intervertebral Disks.—The so-called vacuum phenomenon in intervertebral disks was recognized only in recent years, and few cases were reported in the literature. It is shown roentgenographically as an area of decreased density in degenerating disks, and Marr suggests that these areas of decreased density contain gas from surrounding fluids that have been vaporized as the result of a partial vacuum. Of 2,419 men between the ages of 19 and 72 subjected to x-ray examination of the lumbosacral spine, 49 (2.026%) had gas in at least one disk in this area; 10 of these patients had gas in more than one of these disks, so that a total of 61 disks were involved. The lower two disks comprised 44 (72.1%) of the 61 involved disks; the high incidence of gas in the lower lumbosacral area is probably due to greater stress on these two disks. The average age of patients who had gas in disks was 57; the youngest patient was 49. Narrowing of the spaces between the vertebral bodies, spurring of adjacent margins, and eburnation of adjacent bodies were other changes frequently associated with gas in disks. Further studies are needed to provide more information about gas in disks, a phenomenon that may be frequently overlooked.

Arch. of Physical Medicine & Rehabilitation, Chicago

34:603-648 (Oct.) 1953

- Vocational Counseling with the Severely Handicapped. W. M. Usdane.—p. 607.
- Coordination of Plastic Surgery and Physical Medicine in the Paraplegic Patient. C. S. Wise and G. S. Letterman.—p. 616.
- *Electrosurgery for Treatment of Cutaneous Neoplasms. A. C. Cipollaro.—p. 621.
- Iontophoresis with Dye Substances, Inorganic Compounds and Organic Drugs: Experimental Studies. Y. T. Oester and E. P. O'Malley.—p. 627.
- Scapular Fixation by Bracing in Serratus Anterior Palsy: Report of Its Use in Case of Serum Neuritis and Brief Review of Syndrome. A. S. Russek and M. Marks.—p. 633.

Electrosurgery in Cutaneous Neoplasms.—Cipollaro attempts to refute what he believes to be faulty criticism of electrosurgery. It is true that wounds following electrosurgical procedures require a longer healing time than noninfected wounds produced with a sterile scalpel that heal by primary union. However, in treating lesions about the eyelids, ears, and nose, the

cosmetic result following electrosurgery is usually superior to that following scalpel surgery. Electrosurgical technique often obviates hospitalization and the expenditures for the use of the operating room and the anesthetist's fee. The statement that the use of electrosurgery for the treatment of a benign tumor causes it to become malignant should not be taken seriously. Electrosurgical currents are adequate, safe, and efficient for the treatment of most benign and malignant tumors of the skin. Electrodesiccation is employed far more frequently than electrocutting or electrocoagulation, and, therefore, a "spark gap" high frequency apparatus is more desirable than a "tube" machine. Local procaine anesthesia is usually employed. The use of the curet is an essential part of the procedure of destroying cutaneous lesions with electrosurgery. Basic rules of surgical procedures and of antisepsis must be adhered to for successful results. The following tumors lend themselves to treatment with electrosurgery; adenoma sebaceum, angioma, cutaneous horn, dermatofibrosarcoma protuberans, epithelioma, fibroma, fibrosarcoma, granuloma pyogenicum, Kaposi's sarcoma, keloid, keratoses, lipoma, melanoma, myoblastoma, nevi, rhinophyma, verrucae, xanthoma, and xeroderma pigmentosum. Some of these tumors may also be treated with other methods.

Bulletin of Johns Hopkins Hospital, Baltimore

93:205-274 (Oct.) 1953

- Further Studies of Hepatic Structure and Function by Fluorescence Microscopy. A. L. Grafflin and E. G. Corddry.—p. 205.
- *Maldevelopment of Corium in Osteogenesis Imperfecta Syndrome. R. H. Follis Jr.—p. 225.
- Transverse Lines in Bone: Mechanism of Their Development. E. A. Park and C. P. Richter.—p. 234.
- Ultrafiltration Studies on Calcium and Phosphorus in Pathological Human Serum. T. R. Hopkins, T. B. Connor and J. E. Howard.—p. 249.

Maldevelopment of Corium in Osteogenesis Imperfecta.—Follis recently called attention to certain hitherto unreported morphological alterations in the skin, eye, and skeletal tissues of an infant coming to autopsy with the classic manifestations of osteogenesis imperfecta congenita. In the skin, the primary change appeared to be a failure of the normal transformation of reticulum fibrils into mature, nonargyrophilic collagen fibers. Since this abnormality had not been described before, dermal tissues of subsequent cases of osteogenesis imperfecta were examined with great interest. This report presents observations on the skin from four additional cases that have become available for study since the previous communication. In all, particularly those in which the skeletal tissues were most affected, the corium showed a characteristic abnormality, namely failure of argyrophilic reticulum fibrils to be transformed into adult argyrophilic collagen fibers.

California Medicine, San Francisco

79:343-414 (Nov.) 1953

- 14,501 Deliveries with No Maternal Death. S. Pillsbury.—p. 343.
- Peripheral Arteriosclerosis: Present Concepts of Management. E. J. Wyllie and R. E. Gardner.—p. 346.
- Pediatric Endocrinology: Notes on Some Recent Advances. F. L. Plachet.—p. 353.
- What's New in Cerebral Palsy. M. H. Jones.—p. 357.
- Western Equine Encephalitis in Infants: Report on Three Cases with Sequelae. H. B. Bruyn and E. H. Lennette.—p. 362.
- Management of Strabismus. A. Jampolsky.—p. 367.
- *Histamine Treatment of Multiple Sclerosis. J. K. Smith and W. F. Schaller.—p. 370.
- Allergic Aspects of Multiple Sclerosis. H. D. Jones.—p. 376.
- Multiple Sclerosis: Its Frequency and Distribution, with Special Reference to San Francisco. L. T. Kurland and H. W. Newman.—p. 381.
- Importance of Potassium After Operation. G. C. Henegar.—p. 386.
- Tuberculosis Control in California Mental Hospitals. E. H. Crawfis, E. Kupka and W. R. Oechsli.—p. 390.
- Cortisone and Corticotropin (ACTH)—Review. E. E. Harnagel.—p. 394.

Histamine of No Benefit in Multiple Sclerosis.—This study was undertaken as a direct result of the unusual public interest aroused by reports in the lay press regarding histamine in the treatment of multiple sclerosis. Histamine was administered intravenously or by iontophoresis to 19 patients with clearly established diagnoses of multiple sclerosis. In

each of the three classifications of the disease (stationary, progressive, and acute), no significant difference in improvement between treated and control groups was observed. Control cases were those in which treatment was identical except for histamine therapy. In four of seven cases of progressive disease further deterioration occurred despite histamine therapy. Of the other three patients, one died a year later and another returned to the hospital in three months with severe symptoms that were not relieved with further histamine treatment. In two patients with remittent disease new symptoms, presumably caused by new lesions of the central nervous system, developed while histamine therapy was in progress. In cases of stationary disease histamine treatment was of no benefit.

Circulation, New York

8:641-800 (Nov.) 1953

- George E. Brown Memorial Lecture: Some Chemical Factors in Pathogenesis of Atherosclerosis. D. P. Barr.—p. 641.
- Facts and Fallacies Regarding Blood Pressure of Different Regional and Racial Groups. R. P. Bays and N. S. Scrimshaw.—p. 655.
- *Platelet Thrombosis Syndrome. P. S. Vassar and D. M. Spain.—p. 664.
- *Studies on Control of Hypertension by Hyphex: I. Effects on Blood Pressure. H. A. Schroeder, J. D. Morrow and H. M. Perry Jr.—p. 672.
- Demonstration of Differential Effects on Pulmonary and Systemic Arterial Pressure by Variation in Oxygen Content of Inspired Air in Patients with Patent Ductus Arteriosus and Pulmonary Hypertension. H. B. Burchell, H. J. C. Swan and E. H. Wood.—p. 681.
- Mechanical and Myocardial Factors in Chronic Constrictive Pericarditis. R. M. Harvey, M. I. Ferrer, R. T. Cathcart and others.—p. 695.
- *Further Considerations on Indications for and Limitations of Direct Surgery in Arteriosclerosis. W. S. Dye, J. H. Olwin and O. C. Julian.—p. 708.
- Clinical Appraisal of New Adrenergic Blocking Agent: Effect of Regitine on Digital Blood Flow in Normal Subjects and Patients with Peripheral Arterial Diseases. C. W. Clarke Jr., D. R. Hays Jr. and T. B. Van Itallie.—p. 715.
- Spontaneous and Induced Variations in Serum Lipoproteins. H. L. Chandler, E. Y. Lawry, K. G. Potec and G. V. Mann.—p. 723.
- Studies of Human Peripheral Blood Flow: Effect of Injection Volume on Intramuscular Radiosodium Clearance Rate. G. F. Warner, E. L. Dobson, N. Pace and others.—p. 732.
- Magnetic Tape Recording Electrocardiograph. W. L. Proudfit and J. F. Dobby.—p. 735.
- Ballistocardiographic Study of Healthy Young Adult Males. W. B. Abrams and H. D. Edger.—p. 733.
- Thiamine Deficiency in Organic Heart Disease. M. G. Wohl, C. R. Shuman, R. Turner and J. J. Fittipod Jr.—p. 744.
- Pattern of Failure of Homografted Canine Heart. S. A. Wesolowski and J. F. Fennessey.—p. 750.
- Treatment of Cardiac Arrhythmias. D. Scherf.—p. 756.
- Congestive Heart Failure Induced by Primary Systemic Amyloidosis: Diagnostic Problem. R. D. Pruitt, G. W. Daugherty and J. E. Edwards.—p. 769.

Platelet Thrombosis Syndrome.—The clinical and necropsy findings in seven cases of platelet thrombosis syndrome support the belief that vascular damage precedes the formation of thrombi. Search for prethrombotic vascular changes led to their discovery in several instances. The average duration of the illness was 17 weeks; in one case it lasted for the unusually long period of nine months. Fever of from 99 to 102 F was a constant feature. Hemorrhagic manifestations, consisting of purpura, retinal hemorrhages, hematuria, or bleeding gums or epistaxis, were noted in five cases. Pallor, weakness, and easy fatigability were notable in five patients in whom anemia was severe, and in four of these jaundice was also present. Anemia in the other two patients was minimal. Neurological disturbances, shown by six patients, included headache, drowsiness, mental confusion, convulsions, focal paresthesia, and paresis. Anisocytosis, poikilocytosis, reticulocytosis, and nucleated red blood cells were frequently present. Platelet counts in one case were repeatedly within normal range with an unexpected transient prolongation of prothrombin times. The most characteristic necropsy finding was the widespread presence of hyaline thrombi in the small arteries, arterioles, and capillaries. These platelet thrombi were present in the kidneys and myocardium in all cases. The major organs least frequently involved were the lungs and liver. The bone marrow was uniformly hyperplastic. The possibility that the syndrome may be secondary to a variety of underlying conditions is suggested by the

fact that associated processes capable of causing vascular damage were noted in four of the seven patients, one of whom had glomerulonephritis, one lead poisoning, and two malignant hypertension.

Control of Hypertension by Hyphex.—The term hyphex, formed from the words hydrazinophthalazine and hexamethonium, is used to designate a new and effective method of controlling arterial hypertension. The simultaneous administration of hexamethonium chloride and hydrazinophthalazine (hydralazine) according to a carefully determined schedule varying with the response in each case results in sustained lowering of the elevated blood pressure. No adequately managed patient failed to respond to the treatment, but modifications of the schedule resulted in failure. Substitution of placebos for one of the drugs was invariably followed by a progressive rise in blood pressure. Patients in malignant stages sometimes died within from two to four days after discontinuing the treatment. The method has been used for from 6 to 25 months in 258 patients, of whom 89 were in malignant, 5 in terminal uremic, and 130 in severe benign stages of hypertension. The blood pressure fell in all cases and was maintained at reasonable levels in approximately 80%. Tolerance did not develop when the method was strictly followed. The malignant stage was altered in all cases, but only three-fourths of the patients survived. Renal insufficiency is in many cases a limiting factor in the effectiveness of hyphex. The method is not ideal, but even in these initial trials it has been shown that control of hypertension is both practical and feasible for patients who are willing to cooperate, if certain precautions are taken to prevent hypotension and obstipation. The present report, which deals with the effect of hyphex on the blood pressure, will be followed by others dealing with special problems.

Direct Surgery in Arteriosclerosis.—The factors responsible for success or failure in the surgical treatment of arteriosclerotic segmental obstruction in the peripheral arteries may be grouped under two headings: (1) proper selection of patients and (2) technical details of surgery. Resection and replacement of an obstructed segment was accomplished in 30 patients (bilaterally in 1); of these grafts, 16 were successful and 15 failed. The results obtained in this series, small though it is, show that there are certain definite indications and contraindications for surgical treatment of this condition. One finding common to all candidates for superficial femoral artery resection is the presence of a femoral pulse and the absence of one at the popliteal level. This does not necessarily mean that the obstruction is limited to the superficial femoral artery, but it does provide a broad basis for selection. Claudication is the symptom that prompts these patients to seek medical attention, and the likelihood of success is diminished if other symptoms are present. Age does not seem to be an important factor in the outcome; the average age of the patients in whom the grafts were successful was 52, and that of those in whom they failed was 51. Rest pain and trophic changes in the foot of the affected extremity are the outstanding contraindications. None of the patients in whom the grafts were successful presented these symptoms, but they were found in several of the patients in whom the grafts failed. Arteriography, though sometimes misleading, is an essential aid in the correct selection of patients for femoral grafting. Injury to collateral vessels should be carefully avoided, because the existence of such vessels may mean the difference between maintenance of the preoperative state or its deterioration if the graft fails. Femoral vein autografts were used with success in two patients, both of whom are symptom-free after periods of 23 and 22 months respectively. Saphenous autografts were used in 22 patients with 13 failures and 9 successes. Saphenous homografts succeeded in four of six cases, and one such graft, listed as a failure, was never implanted because of the friability of the host's vessels. The blocked segment of the femoral artery may be either removed or left in place as indicated by the circumstances in each case. Anticoagulants apparently were not an important factor in the success or failure of the grafts.

Delaware State Medical Journal, Wilmington

25:279-308 (Oct.) 1953

- To Which of These Shall We Direct Our Attention? V. D. Washburn.—p. 279.
- Renal Uremia: Observations on Series of 84 Patients with Particular Reference to Combined Electrolyte Management: Preliminary Report. R. A. Neubauer and L. Dunsmore.—p. 282.
- Megaloblastic Anemia of Childhood: Case Report of Child Aged 8. M. H. Dorph and J. W. Abbiss.—p. 289.
- Case of Hemochromatosis (Bronze Diabetes) in a Female. J. W. Abbiss and M. H. Dorph.—p. 292.
- Method of Treatment of Stasis Ulcers of Lower Extremity. A. Iddles.—p. 295.
- Chondrosarcoma: Case Report. E. A. Mekanik.—p. 299.
- Erythromycin in Treatment of Pneumococcal Pneumonia. A. E. Bacon Jr.—p. 300.
- Hesperidin-C in Control of Edema Related to Carcinoma. A. L. Lichtman.—p. 304.

Diseases of Chest, Chicago

24:477-590 (Nov.) 1953

ANGIOCARDIOGRAPHY

- Angiocardiography in Diseases of the Chest. I. Steinberg.—p. 477.
- *Persistence of Left Superior Vena Cava. I. Steinberg, W. Dubilier Jr. and D. S. Lukas.—p. 479.
- Surgical Treatment of Bullous Emphysema Contributions of Angiocardiography. L. Miscal and R. W. Duffy.—p. 489.
- "Primary" Undifferentiated Carcinoma in Mediastinum: Report of Two Cases with Angiocardiographic and Pathologic Findings. N. Finby and I. Steinberg.—p. 500.
- Myxoma of Heart: Roentgen Diagnosis During Life in Three Cases. I. Steinberg, C. T. Dotter and F. Glenn.—p. 509.
- Control of Chest Pain. E. R. Levine.—p. 521.
- Use of Iso-Nicotinic Acid Hydrazides in Treatment of Tuberculosis. M. M. Ziskind, E. Calovich, J. Joffko and S. Jacobs.—p. 535.
- Treatment of Pulmonary Tuberculosis with Isonicotinic Acid Hydrazide. N. Oeconomopoulos, C. Stephanopoulos, D. Liacacos and others.—p. 545.
- Tracheiectasis with Tracheocele: Report of Case in Which Tracheocele Was Resected. H. A. Andersen, O. T. Clagett and C. A. Good.—p. 553.
- *Fibro-Anthraxis of Lungs in Elderly Individuals in Smoky City. T. J. Moran.—p. 558.
- Spontaneous Pneumothorax. J. N. Briggs, R. W. Walters and F. X. Byron.—p. 564.
- Rehabilitation of the Tuberculous: Two-Year Observations on Group of Ambulatory Patients in Tuberculous Hospital. J. Goldberg and B. Berner.—p. 571.
- Ward Rounds—"Hemoptysis." T. H. Noehren.—p. 580.

Persistence of Left Superior Vena Cava.—Persistence of a left superior vena cava, a congenital anomaly of considerable interest, was detected during life by angiocardiography and cardiac catheterization in five women between the ages of 21 and 49, one 21-year-old man, and three boys and two girls between the ages of 3 and 6. It occurred as an isolated lesion in three women and was associated with other congenital cardiac anomalies, such as situs inversus, dextrocardia, interatrial and intraventricular septal defects, tricuspid atresia, tetralogy of Fallot, and infundibular pulmonary stenosis, in all the children and in the other two women. Persistent left superior vena cava without a right superior vena cava but in the absence of any other cardiovascular abnormalities was observed in the man. Persistent left superior vena cava is a relatively simple defect of development that as a single lesion produces no detectable adverse effects on the function of the heart aside from the fact that it may occasionally simulate widening of the aorta during roentgenography of the heart. The association of persistence of left superior vena cava with complex cyanotic types of congenital cardiovascular disease is, however, noteworthy. Although a left superior vena cava may be suspected on fluoroscopy, it can be positively identified in the living patient only by angiocardiography or cardiac catheterization. A left superior vena cava may be missed during angiocardiography unless the left arm veins are used for the injection of contrast mediums. Even though 11 cases were observed by the authors, many more were probably missed because injection of the right arm for angiocardiography is preferred since this simplifies positioning of the patient for left oblique and lateral studies of the heart. Catheterization of the heart through the left arm veins, routinely used by the authors, affords the opportunity of entering a left superior vena cava. In some of their cases demonstration of the left superior vena cava could be accomplished

by catheterization of the right superior vena cava, passing the catheter through the right superior vena cava, the right atrium, into the coronary sinus, and up the left superior vena cava.

Fibroanthracosis of the Lungs.—Of 770 necropsies performed on indigent residents of Pittsburgh who died at the average age of 60, with men predominating in a ratio of 3 to 1, 97 showed some degree of fibroanthracosis, an incidence of 12.5%. In 8 of the 97, fibroanthracosis was listed as the principal cause of death, a fatal incidence of 1%. In two additional cases fibroanthracosis was a contributory cause of death in patients with pulmonary tuberculosis. These 10 patients were men, and 6 of them had been coal miners for 4 to 33 years. Analysis of the causes of death in the 97 cases of fibroanthracosis indicated that its presence in the lungs did not increase the incidence of or predispose to death from other lung diseases such as pneumonia, tuberculosis and bronchogenic carcinoma. Fibroanthracosis was observed in only seven women, and in each of these lung damage was slight and had no effect on the patient's death. Most of the fatal cases of fibroanthracosis occurred in coal miners. The mechanism of death was congestive heart failure. Right ventricular hypertrophy was pronounced in almost all of the fatal cases. These results suggest that long-continued exposure to a smoky atmosphere such as that of the Pittsburgh district in which coal mining is a large, essential industry, while it may cause minimal scarring after many years, does not result in any appreciable degree of lung fibrosis. Fibroanthracosis of the lungs, in this district at least, is an occupational disease, predominantly if not entirely associated with coal mining.

Endocrinology, Springfield, Ill.

53:465-584 (Nov.) 1953. Partial Index

- Similarity Between Anemia Induced by Hypophysectomy and That Induced by Combined Thyroidectomy and Adrenalectomy in Adult Female Rats. R. C. Crafts.—p. 465.
- Comparison of Epithelial Percentage and Nuclear Volume Determinations as Indicators of Thyroid Activity Following Stimulation by Thyrotropin. P. Tala.—p. 474.
- Content of Protein Nitrogen and of Nucleic Acids in Epithelium of Ectocervix of Women. H. Herrmann, E. S. Taylor and B. J. Neukom.—p. 487.
- Production of Hypertension, Nephrosclerosis and Cardiac Lesions by Methylandrostenediol Treatment in Rat. F. R. Skelton.—p. 492.
- Cholesterol Biosynthesis in Adrenal Tumor. L. L. Smith and N. T. Werthessen.—p. 506.
- Effect of Growth Hormone on Nucleic Acid Content of Developing Chick Embryo. Tung-Yue Wang, Kuang-Mei Hsieh and H. T. Blumenthal.—p. 520.
- Measurement of Estrogen Mixtures by Differential Fluorometry. J. W. Goldzieher.—p. 527.
- Selective Depletion of Adrenaline Content of Suprarenal Gland by Injection of Insulin in Cat. B. Hökfelt.—p. 536.
- Effect of Hypophysectomy, DDD Treatment, and Surgical Trauma on Oxygen Consumption of Various Zones of Adrenal Cortex. J. Nichols, C. Davis and H. D. Green.—p. 541.
- Mechanisms of Insulin and Epinephrine Effect on Level of Plasma Potassium. A. Dury.—p. 564.
- Effect of Diethyldithiocarbamate and Other Agents on Mice with Obese-Hyperglycemic Syndrome. J. Mayer, S. B. Andrus and D. J. Silides.—p. 572.
- Effect of Adrenal Cortical Extract, Cortisone and Hydrocortisone upon Work of Adrenalectomized-Eviscerate Rat. D. J. Ingle, J. E. Nezamis and E. H. Morley.—p. 582.

Illinois Medical Journal, Chicago

104:293-348 (Nov.) 1953

- Screening for Diabetes. G. H. Gowen.—p. 293.
- Complications of Labor. J. H. Randall.—p. 295.
- Preliminary Clinical Report on New Surface Anesthetic Agent. L. Peal and M. Karp.—p. 299.
- Diagnosis of Occult Ectopic Pregnancy. C. S. Stevenson.—p. 302.
- Superficial Fungus Infections. D. M. Cohen.—p. 314.
- Operative Dentistry for Cerebral Palsied and Difficult Child Patient Under General Anesthesia. W. R. Dunnom.—p. 317.
- Role of Police Scientist in Medical Legal Investigation. R. F. Turner.—p. 320.
- *Metastases to Bone from Bladder Tumors. A. S. Kinne.—p. 323.

Metastases to Bone from Bladder Tumors.—Kinne presents the case of a man, aged 49, who was first seen in July, 1949, complaining of painless hematuria that had existed over the past year and had been constant for the past

three months. Cystoscopy revealed an irritable bladder and a large edematous papillary tumor covering the right half of the floor of the bladder which extended into the trigone. The right ureteral orifice was obscured by the tumor. Eight months after surgical treatment of the vesical tumor, the patient felt a snap in his right leg and fell. He was admitted to the hospital and placed in traction. Roentgenograms showed a pathological fracture of the right upper femur and extensive destruction of the bone, which was not apparent on a roentgenogram taken six weeks earlier. The patient rapidly grew worse and died nine months after his first admission. The author feels that tumor cells of the primary lesion probably entered the blood stream and were carried to the bone. The literature on bone metastases from vesical tumors is reviewed. The author stresses that metastasis to bone from bladder tumors is more frequent than is generally known. Metastases are apparently blood borne and bear no relationship to the size of the primary tumor. The bony lesions are osteolytic in nature. Radical surgery with removal of pelvic lymphatics is an advance, but is not the final answer to treatment of carcinoma of the bladder.

Journal of Aviation Medicine, St. Paul

24:373-470 (Oct.) 1953

- Some Observations on Human Tolerance to Accelerative Stress: Phase II. Preliminary Studies on Primates Subjected to Maximum Simple Accelerative Loads. E. L. Beckman, J. E. Ziegler, T. D. Duane and H. N. Hunter.—p. 377.
- Comparative Ecological Study of Chemistry of Planetary Atmospheres. H. Strughold.—p. 393.
- Stimulus Required to Produce Motion Sickness: Restriction of Head Movement as Preventive of Airsickness-Field Studies on Airborne Troops. W. H. Johnson and J. W. Mayne.—p. 400.
- Importance and Relation of Preventive Medicine to Aviation Medicine. J. Rizzolo.—p. 412.
- Aeromedical Problems for Nuclear Propelled Aircraft. J. E. Pickering and G. E. Thoma Jr.—p. 423.
- Plea for Inclusion of Cover Test for Heterophoria in Routine Flight Physical Examinations. T. D. Duane.—p. 425.
- *Fascination: Cause of Pilot Error. B. Clark, M. A. Nicholson and A. Graybiel.—p. 429.
- Physiological Recognition of Strain Associated with Flying. T. J. Domanski and J. B. Nuttall.—p. 441.
- Peripheral Circulation and Simulated Altitude: Part II. F. Girling and C. Maheux.—p. 446.

Fascination: A Cause of Pilot Error.—Fascination is a condition in which a pilot fails to respond adequately to a clearly defined stimulus-situation in spite of the fact that all of the necessary cues are present for a proper response and the correct procedures are well known to him. Fascination has also been defined as a state of narrowed attention associated with excessive concentration on some object or task with resulting loss of voluntary control over response. Thus, a flight student may concentrate on lining up with the runway and keeping a proper attitude to such a degree that the sound of the horn indicating "wheels up" may be so far in the margin of his attention that it is not perceived. Therefore, the pilot does not react appropriately although he may recall later that the horn had blown. The authors were led to inquire into the problem of fascination after discussions with instructors in formation flying, who described experiences in which the student pilot failed to maneuver in order to avoid certain collision. This occurred under circumstances that posed no problem in flying skill. A questionnaire was constructed and was administered to naval flight students, with the explanation that the purpose was to obtain information regarding vertigo and fascination, and the two terms were defined for them. The students were assured that all of their statements would remain confidential and that the results would be for research purposes only. The questionnaire, which asked the students to write a description of an experience with fascination and to mark a check list of such experiences, was administered to a total of 502 flight students, 226 of whom were approaching the end of basic flight training and 276 students in advanced training. In addition, 25 flight instructors were interviewed. Fascination or target

fixation was well known to both instructors and students; it had been experienced by 92% of the advanced students and 88% of the basic students. The phenomenon is more complex than the definition indicates. One type of fascination involves excessive concentration, whereas certain types of fascination experiences involve also compulsive behavior and "blocking." It is suggested that fascination as a hazard in flying can be reduced by the flight student being taught to shift his attention from one significant thing to another in his visual and auditory fields, by techniques that reduce tenseness and by knowledge of what fascination is and of how to deal with it. Fear and the emotional reactions accompanying it, and the resulting emotional "blocking" plays a part in fascination, particularly in the early stages of learning. Such reactions should be guarded against and will tend to be reduced in the normal process of learning.

Journal of Bacteriology, Baltimore

66:505-626 (Nov.) 1953. Partial Index

- Growth Promoting and Antisulfonamide Activity of Pteroylglutamic Acid and Related Compounds for *Escherichia Coli* and *Aerobacter Aerogenes*. H. F. Havas and A. P. McGeedy.—p. 531.
- Production of Chains by *Diplococcus Pneumoniae* in Magnesium Deficient Media. E. J. Rochford and R. J. Mandle.—p. 554.
- Inactivation of Influenza Viruses by Tannic Acid and Related Compounds. R. S. Carson and A. W. Frisch.—p. 572.
- Mode of Inactivation of Influenza Virus by Tannic Acid. A. W. Frisch and R. S. Carson.—p. 576.
- Immunization Against *Brucella* Infection. M. Herzberg and S. Elberg.—p. 585.
- Oxidation of Glutamic Acid by *Brucella Abortus*. A. G. Marr, C. B. Olsen, H. S. Unger and J. B. Wilson.—p. 606.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

13:1305-1444 (Nov.) 1953

- Clinical Experience with New Antithyroid Drug: 2-Carbethoxythio-1-Methylglyoxaline. E. C. Bartels.—p. 1305.
- *Treatment of Simple Goiter with Thyroid. M. A. Greer and E. B. Astwood.—p. 1312.
- ACTH and Cortisone Therapy of Acute Nonsuppurative (Subacute) Thyroiditis. S. C. Werner.—p. 1332.
- Physiologic Activity of *l*-Triiodothyronine. J. Lerman.—p. 1341.
- Radioiodine Tracer Study of Fate of Human Thyroid Autotransplants. D. E. Szilagyi, J. L. Barrett, E. R. Longabaugh and L. E. Preuss.—p. 1347.
- Thyroidal Uptake of Stable Iodine Compared with Serum Concentration of Protein-Bound Iodine in Normal Subjects and in Patients with Thyroid Disease. B. A. Burrows and J. F. Ross.—p. 1358.
- Blood Level as Guide to Therapy with Radioiodine. J. E. Rall, M. S. Sonnenberg, J. Robbins and others.—p. 1369.
- Uptake of Radioactive Iodine by Carcinoma of Thyroid Gland: Study of 128 Cases. B. M. Black, L. B. Woolner and C. M. Blackburn.—p. 1378.
- Treatment of Thyroid Cancer Metastases with TSH and I^{131} During Thyroid Hormone Medication. C. T. Sturgeon, F. E. Davis, B. Catz and others.—p. 1391.
- Present-Day Problem of Cancer of Thyroid. R. B. Cattell and B. P. Colcock.—p. 1408.
- *Bilateral Paralysis of Vocal Cords: Symptoms, Diagnosis and Treatment. F. Z. Havens.—p. 1416.
- Diagnosis of Hypothyroidism. P. Starr.—p. 1422.

Treatment of Simple Goiter with Thyroid.—A summary is presented of the medical literature on treatment of simple goiter with thyroid since the inception of such therapy in 1894. In view of the current infrequent use of thyroid in simple goiter, 50 patients between the ages of 11 and 70 years with simple nontoxic goiter are reported who were treated with thyroid between 1945 and 1950. Of the 50 patients, 23 had diffuse goiter, 9 multinodular goiter, and 18 a single nodule. The usual dose of desiccated thyroid was 2 or 3 grains (0.12 to 0.2 gm.) daily, with the extremes varying between $\frac{1}{2}$ and 6 grains (0.03 to 0.4 gm.) per day. The patients were reexamined at intervals that varied from one week to two months, and therapy was continued until no further decrease in the size of the thyroid gland seemed likely or until the goiter had disappeared altogether. As an exactly comparable series of untreated patients could not be accumulated, a survey was made of the hospital

records of all patients admitted since 1933 with simple nontoxic goiter. Letters were sent to these patients, and the 40 who returned for reexamination were used for comparison. Of the 50 patients treated, 12 were therapeutic failures, while the size of the thyroid decreased in 38, with complete remission in 20. Most of the complete remissions occurred within three months, and none required more than six months. Most of the patients who failed to show any response were treated for longer than six months. It is unlikely that a prolongation of therapy would have been effective. Only two relapses were observed during the one to seven years of follow-up. Although it is anticipated that more will occur in the future, such relapses should be amenable to another course of thyroid therapy. Twenty of the 23 patients with diffuse goiter responded to the treatment, and 10 underwent complete remission. Six of the nine patients with multinodular goiter had a favorable response, and in three the goiter disappeared completely. Diminution in the size of the goiter occurred in only 6 of the 40 patients who had not been treated with thyroid. The results of earlier investigators concerning the usefulness of the thyroid in the treatment of simple goiter were, therefore, amply confirmed by the authors' observations. The age of the patient and the duration of the goiter prior to treatment did not seem to have as great an influence on the response to therapy as was previously observed. Many of the patients with a satisfactory response to the treatment were in the older age groups and had noted thyroid enlargement for 5 to 10 years or longer. Diffuse goiter proved more apt to respond than the nodular variety. Desiccated thyroid will decrease the secretion of thyrotropin and, in turn, the size of the goiter, regardless of the nature of the defect in hormone synthesis; therefore, it might be regarded as specific in the treatment of goiter. In addition to its beneficial effect on the size of the goiter in three out of four cases, thyroid administration aids in diagnosis in doubtful cases. Failure of the goiter to respond and failure of the radioiodine accumulation to be suppressed constitutes suggestive evidence for diagnosis of hyperthyroidism.

Bilateral Paralysis of Vocal Cords.—Preoperative examination of the vocal cords of a large number of patients who were to undergo thyroidectomy and corresponding postoperative examination of the same patients 10 to 14 days later, by indirect laryngoscopy revealed that 88 patients had experienced paralysis of a vocal cord. An inquiry was made regarding any untoward symptoms these patients might have had during the early postoperative days. For comparison 1,300 records of patients without vocal cord paralysis were available. It appeared that if a patient who has had a thyroidectomy is hoarse and also suffers from choking during the first five postoperative days, it is highly probable that at least one vocal cord has been paralyzed. Six months or more after one vocal cord has been paralyzed at thyroidectomy the patient probably will have no symptoms referable to such paralysis. Six months or more after both vocal cords have been paralyzed at thyroidectomy the patient's voice usually will be essentially normal, but he will have more or less dyspnea. This results because the bowing of the vocal cords that at first results from the surgical paralysis gradually changes so that the margins become nearly straight with gradual reduction in the airway between the cords. Treatment for bilateral paralysis of the vocal cords is indicated whenever the patient cannot live comfortably within the limitations imposed by the dyspnea. Two methods of surgical treatment are available: (1) the King operation, whereby the arytenoid is removed or is anchored laterally, with the field of operation exposed through an external excision and (2) the Thornell operation, a transoral arytenoidectomy, with the field of operation exposed by means of the suspension laryngoscope. The latter technique was employed by the author in 50 patients with bilateral paralysis of the vocal cords with excellent results in 47, fair results in 2, and unsatisfactory results in 1. Good results can be achieved by either method.

J. Histochemistry & Cytochemistry, Baltimore

1:405-510 (Nov.) 1953. Partial Index

- Correlation of Manometric and Histochemical Techniques in Study of Cholinesterase Activity. C. Harris, B. S. Cohen and A. D. Bergner.—p. 405.
- Method for Retaining Bacterial Cells in Place for Staining and Cytochemical Tests for Light or Electron Microscopy. N. C. Dondero and M. R. Zelle.—p. 415.
- Quantitative Histochemistry of Brain: Histological Sampling. O. H. Lowry.—p. 420.
- Acid-Fastness as Histochemical Test. J. W. Berg.—p. 436.
- Comparison of Aldehyde Fuchsin Staining, Metachromasia and Periodic Acid-Schiff Reactivity of Various Tissues. N. S. Halmi and J. Davies.—p. 447.
- Histochemical Demonstration of Cystine-Containing Structures by Methods Involving Alkaline Hydrolysis: (Alkaline Tetrazolium Method). A. G. E. Pearce.—p. 460.
- Histochemical Study of Distribution of Esterases. R. D. Chessick.—p. 471.
- Oxidative Reactions of Myeloid Elements. G. Gomori.—p. 486.
- Histochemical Detection of Zinc. M. Mager, W. F. McNary Jr. and F. Lionetti.—p. 493.

Journal of Immunology, Baltimore

71:261-384 (Nov.) 1953. Partial Index

- Quantitative Determination of Hemagglutinins for Normal and Trypsinized Human Red Blood Cells. H. J. Winn, M. C. Dodd and C. S. Wright.—p. 261.
- Effect of Rabbit Antibody Administered on Behavior of ¹²⁵I Labelled Human Serum Albumin in Mice. L. R. Melcher, S. P. Masouredis and M. B. Shimkin.—p. 275.
- Persistence of Complement in Aged Sera. P. H. Maurer and W. Weigle.—p. 284.
- Anaphylaxis in Mouse Produced with Crystalline Bovine Albumin. M. Solotorovsky and S. Winsten.—p. 296.
- Studies of Complement-Fixation Reaction in Virus Systems: V. In Foot and Mouth Disease Using Direct and Indirect Methods. C. E. Rice and J. B. Brooksby.—p. 300.
- Anaphylactic Shock in Mouse Vaccinated with Hemophilus Pertussis: III. Antigens, Antibody and Passive Transfer Studies. S. Malkiel, B. J. Hargis and S. M. Feinberg.—p. 311.
- Deposition of Beef Serum Gamma-Globulin in Rabbit Organs and Subcellular Fractions. C. F. Crampton, H. H. Reller and F. Haurowitz.—p. 319.
- Role of Enzyme in Reversible Agglutination of Red Cells. R. E. Hoyt and H. Zwicker.—p. 325.
- Requirements for Magnesium Ions in Inactivation of Third Component of Human Complement (C₃) by Insoluble Residues of Yeast Cells (Zymosan). L. Pillemer, L. Blum, J. Pensky and I. H. Lepow.—p. 331.
- Quantitative Method of Titrating Anti-Platelet Serum in Vitro. W. O. Cruz.—p. 346.
- Inter-Relation of Age, Immune Response, and Susceptibility to Mumps Virus in Hamsters.—J. R. Overman and L. Kilham.—p. 352.
- Studies on Role of Ca⁺⁺ and Mg⁺⁺ in Complement Fixation and Immune Hemolysis. L. Levine, K. M. Cowan, A. G. Osler and M. M. Mayer.—p. 359.
- Transfer of Experimental Allergic Encephalomyelitis in Rat by Means of Parabiosis. M. M. Lipton and J. Freund.—p. 380.

Journal of Investigative Dermatology, Baltimore

21:273-336 (Nov.) 1953

- *Painful Injections Allayed with Cortisone. T. Cornbleet.—p. 273.
- Scratching Machine to Study Mechanical Trauma on Skin. R. W. Goldblum and W. N. Piper.—p. 275.
- Studies on Post-Atabrine Dermatitis: II. Permanent Anhidrosis, Anhidrotic Asthenia and Prolonged Dermatitis Following Atabrine Dermatitis. I. L. Schamberg.—p. 279.
- Studies of Sweating: VI. Urticariogenic Properties of Human Sweat. M. B. Sulzberger, F. Herrmann, A. Borota and M. B. Strauss.—p. 293.
- Microscopic Studies of Keratinization of Human Hair. G. F. Odland.—p. 305.
- Patterns of Hair Growth Cycles in Colored Rabbit and Their Modification by Experimental Means. H. R. Rony, D. M. Cohen and I. Schaffner.—p. 313.
- In Vitro Study of Group of Blocked Steroids as Anti-Mycotic Agents. G. Rebell and J. H. Lamb.—p. 331.

Painful Injections Allayed with Cortisone.—Cornbleet found that a drop (1/20 cc., 1.25 mg.) of ordinary commercial suspension of cortisone or hydrocortisone incorporated with an injectable medicament allays immediate pain. Control injections with the suspending fluids for cortisone and hydrocortisone were of little help, and procaine solutions used with painful materials did not allay pain. However, if anesthetization

preceded the use of the medicament, this prevented pain, but required two injections. The analgesic action of cortisone must be by some other mechanism than that of ordinary local anesthetics. It may perhaps prevent formation of or neutralize intermediate noxious materials, such as histamine-like agents. This would seem to be the case, because cortisone abolishes flare in the skin at the site of its injection. Another possibility is that cortisone shields sensory endings against the effects of injury. The author feels that if others will corroborate the results he obtained, pharmacutists might want to include the corticoids with such painful medicaments as thiamine hydrochloride and crude liver extract.

Journal of Nervous and Mental Disease, New York

117:479-576 (June) 1953

- Klippel-Feil Syndrome: Etiology and Treatment of Neurologic Signs. W. H. Mosberg Jr.—p. 479.
 Clinical Hypothalamic Syndromes: Anatomicophysiological Correlations. I. S. Wechsler.—p. 492.
 Suicide in a State Hospital for the Mentally Ill. S. Levy and R. H. Southcombe.—p. 504.
 Case History Data and Prognosis in Schizophrenia. L. Phillips.—p. 515.
 *Focal Cerebral Injury Due to *Trichinella Spiralis*. R. W. Hurd.—p. 526.
 Improvement in Psychosis Following Conditioned-Reflex Treatment for Alcoholism. G. N. Thompson and B. Bielinski.—p. 537.
 Use of Mebaral in Treatment of Chronic Alcoholism. J. A. Smith and W. T. Brown.—p. 544.

Cerebral Injury Due to *Trichinella Spiralis*.—Usually infestation with *Trichinella spiralis* manifests itself in puffing of the eyelids, a febrile reaction, muscular pains, and intestinal symptoms. The central nervous system is not often involved, but, when this occurs, the symptom complex can be varied and misleading. Hurd presents the case of a man, aged 40, who on Sept. 5, 1949, ate two patties of ground pork that were insufficiently cooked. Six days later, the patient had a brief bout of slightly bloody diarrhea. The next day his eyes were puffy and red. On the 10th and 11th day after ingestion, he noticed weakness of the right arm and leg and stayed home from work. On the 13th day he could barely walk, was confused, and could not recognize his son. On the following day, he was hospitalized with a provisional diagnosis of poliomyelitis. For the first nine hospital days the temperature ranged from 102 to 103.5 F. On the second hospital day the leukocyte count was 23,700 and the differential count showed 4% eosinophils. The patient was unable to move any muscle in the right arm or leg. On the fifth hospital day, the white blood cell count had fallen to 14,000 with an eosinophilia of 25%. At this time, the story of the inadequately cooked pork was obtained. The high eosinophil count, a positive intradermal test for trichiniasis, and a complement fixation test for trichiniasis with a titer of 800 established the diagnosis. The patient was discharged from the hospital on the 31st hospital day still having some difficulty in walking because of dragging of the right leg. Seven months after discharge there had been no improvement in the right leg, but otherwise the patient appeared normal. The author reviews the literature on involvement of the central nervous system in trichiniasis and shows that in a total of 31 reported cases there were 9 deaths. Patients who have only muscular weakness and in whom reflexes are absent usually recover completely, but the prognosis is poor in patients with mental disturbances or signs of focal lesions in the central nervous system. Trichiniasis with neurological complications may resemble encephalomyelitis, meningitis, acute poliomyelitis, polynueritis, dermatomyositis, and periarthritis nodosa. The methods available for the diagnosis of trichiniasis increase in reliability as the disease progresses. During the first week the chief diagnostic aids are a history of ingestion of raw pork and eosinophilia. During the second week a centrifuged specimen of the cerebrospinal fluid may reveal larvae, if a thorough search is made for them. An intradermal skin test may show a wheal type of reaction. During the third week muscle biopsy and complement fixation tests can be performed.

J. Pharmacology & Exper. Therap., Baltimore

109:107-232 (Oct.) 1953. Partial Index

- Similarity of Acute Hemodynamic Response to 1-Epinephrine and 1-Arterenol. M. E. Zanetti and D. F. Opdyke.—p. 107.
 Estimating Dose of Cardiac Glycoside for Human Subjects. C. I. Bliss, T. Greiner and H. Gold.—p. 116.
 Renal Hemodynamic Effects of Xanthine Compound, Diethylaminoethyl Theophylline Hydrochloride (Parephyllin). W. R. Livesay and J. H. Moyer.—p. 123.
 N-Allylnormorphine as an Antagonist to Intestinal Spasm Produced by Addicting Analgesics. C. M. Gruber, Jr., and C. M. Gruber.—p. 157.
 Toxicologic Studies on Zinc and Disodium Ethylene Bisdithiocarbamates. R. B. Smith Jr., J. K. Finnegan, P. S. Larson and others.—p. 159.
 Use of Cat in Bioassay of Choleric Agents. D. L. Cook, L. D. Calvin and M. A. Kalm.—p. 167.
 Further Cardiovascular and Renal Hemodynamic Studies Following Administration of Hydrallazine (1-Hydrazinophthalazine) and Effect of Ganglionic Blockade with Hexamethonium on These Responses. J. H. Moyer, R. A. Huggins and C. A. Handley.—p. 175.
 Relation Between Skin Temperature and Effect of Morphine upon Response to Thermal Stimuli in Albino Rat and Dog. C. A. Winter and L. Flataker.—p. 183.
 Effect of Histamine on Renal Hemodynamics. W. P. Blackmore, V. E. Wilson and T. R. Sherrod.—p. 206.
 Transport of Priscoline by Renal Tubules. J. Orloff, L. Aronow and R. W. Berliner.—p. 214.
 Aureomycin Absorption and Distribution in Gastro-Intestinal Tract of Dog. W. D. Gray, R. T. Hill, R. Winne and R. W. Cunningham.—p. 223.

Journal of Urology, Baltimore

70:657-806 (Nov.) 1953. Partial Index

- *Metabolic Studies on Bilateral Adrenalectomy Patient. W. W. S. Butler III, J. T. Grayhack, C. L. Ransom and W. W. Scott.—p. 657.
 Histopathological Study of Renal Tubular Reaction Following Intravenous Infusion of Homologous Hemoglobin Solutions in Dogs. A. L. Finkle.—p. 665.
 Histologic Lesion of Cholemic Nephrosis. T. W. Holmes Jr.—p. 677.
 *Sextuplicata Renum: Case of Six Functioning Kidneys and Ureters in an Adult Female. R. C. Begg.—p. 686.
 Wilms' Tumor in Children. R. A. Garrett and H. O. Mertz.—p. 694.
 Attempted Disintegration of Calculi by Ultrasonic Vibrations. W. P. Mulvaney.—p. 704.
 Complications Arising from Transurethral Manipulation of Ureteral Calculi. J. H. Iwano and R. C. Bunts.—p. 708.
 Ureteral Stone in Child: Extraction by Looped Catheter. M. Ellik and J. Getz.—p. 716.
 Paraplegia Due to Vertebral Metastasis of Prostatic Carcinoma: Case Report. G. K. Kawaichi and R. D. Rider.—p. 720.
 ACTH in Radiation Cystitis. L. Persky and G. Austen Jr.—p. 724.
 Benign Mesothelial Tumors of Urinary Bladder: Review of Literature and Report of Case of Leiomyoma. E. W. Campbell and G. J. Gislason.—p. 733.
 Occurrence of Bone Tissue in Human Penis. J. A. Eglitis.—p. 749.
 Interstitial Cell Hyperplasia or Adenoma. K. E. Blundon, S. Russi and R. C. Bunts.—p. 759.
 Cancer of Tunica Vaginalis: Review of Literature and Report of One Case. J. I. Waller and C. A. Hellwig.—p. 768.
 Donovanosis of Epididymis Complicating Tuberculous Infection. M. Marmell, R. Ultmann and S. Weintraub.—p. 776.
 Müllerian Duct Remnants in the Male. V. Moore and G. E. Howe.—p. 781.
 Five Year Survey of Traumatic Urogenital Emergencies. G. Schinagel and G. Sewell.—p. 789.
 Preliminary Report on Lowering of Prothrombin by Gantresin. S. Silberg, C. Bruno, S. Keesal and S. Miceli.—p. 796.

Metabolic Studies After Bilateral Adrenalectomy.—Butler and associates review the history of the use of endocrine treatment in the management of prostatic cancers and point out that hundreds of patients with prostatic cancer have been treated either by surgical castration or estrogen administration, or a combination of both. It was recognized that many failed to respond or responded only for a short while to castration and/or estrogen therapy. A study of the urinary 17-ketosteroids suggested that after castration a reduction occurred followed by a rise to a level twice that observed prior to castration. This rise suggested an extragonadal source of 17-ketosteroids and androgens. This source was logically the adrenal, and so, bilateral adrenalectomies were performed in patients who relapsed after previous response to castration or estrogen therapy. With the aid of cortisone and a certain regimen patients could be kept alive without adrenals. Butler and associates studied the metabolic effects of bilateral adrenalectomy and describe the subjective and objective responses in two patients. They conclude that bilateral adrenalectomy can be a safe and valuable procedure. It may prove to be of great value in the therapy of carcinoma of the prostate, hyperten-

sion, and diabetes mellitus, but until the physiology of the adrenalectomized patient is better understood it must be restricted to the cases in the hopeless category. Patients who have had bilateral adrenalectomy may be maintained on 25 to 50 mg. of cortisone given orally each day in two doses. Acid-base balance remains in equilibrium at this dosage when renal function is normal and the diet is adequate and contains 6 gm. of sodium chloride. Desoxycorticosterone is not usually required and even appears to be contraindicated by studies of total sodium and potassium excretion. Glucose tolerance is increased after bilateral adrenalectomy when cortisone dosage is 25 mg. a day. Alkaline and acid phosphatases indicated improvement of two patients with carcinoma of the prostate with metastases after bilateral adrenalectomy. Another indication that there was a decrease in the cancer growth rate or metabolic rate was the ability of these patients to maintain total serum protein and hemoglobin values. Testosterone increased the adrenocortical requirement and precipitated an Addisonian crisis twice in one of the patients without adrenals. The 17-ketosteroid excretion decreased but never reached very low levels after adrenalectomy. In the second patient, when the malignancy of the prostate became autonomous during the exacerbation, there was an increase in the 17-ketosteroid excretion.

Six Functioning Kidneys in a Woman.—The patient whose case is presented is a woman, aged 42, who enjoyed such excellent health both before and after the incident of central abdominal colic, which led to the x-rays being taken, that she saw no reason for further investigation to satisfy the curiosity of science. However, the pictures clearly indicate that the six kidney-ureter units consist of two sets of three each. There is a medial group consisting of a single right and a double left unit and a lateral group that also shows a single kidney on the right and two on the left. The medial one taken alone would not excite interest because it reproduces a very common clinical finding, namely a double kidney and two ureters on one side. The two ureters run close together and reach the bladder at approximately the same place. In the lateral group, on the other hand, all three ureters pass out widely and maintain a course far lateral to the normal one. They originate from no well-defined kidneys but a series of tube-like calyces that pass mediolaterally, in contrast to the usual arrangement as seen in the medial group. At their lower ends, these lateral ureters turn sharply toward the middle line, cross the medial ureters, and seem to course toward the region of the bladder neck. The two left lateral ureters run side by side and appear to cross one another at least once. The author speculates on the embryonal disturbance that could have produced such an unusual urinary tract and still left the general health unimpaired. He discusses the following hypotheses: 1. There were only two mesonephric ducts, but two ureteric buds arose from the right one and four from the left. 2. The lateral ureters represent a mesonephric system that has continued to function in the adult. The mesonephric duct of the left side is duplicated. 3. There were four mesonephric ducts in the embryo, two on each side. The ones on the right side gave rise to one ureteric bud each, those on the left to two each. 4. The extra kidneys and ureters represent a teratomatous formation, and there is a "duplicata infraumbilicalis" present with no manifestations outside the urinary tract. The author feels that none of these hypotheses are satisfactory.

Louisiana State Medical Society Journal, New Orleans

105:415-454 (Nov.) 1953

- *Hexamethonium and Apresoline: Their Effects on Ambulatory Hypertensive Patients. H. J. Dupuy, J. J. Signorelli and E. Hull.—p. 415.
- Role of Potassium in Diabetic Acidosis. M. J. Weisler.—p. 417.
- Diabetes in Childhood. E. L. Rippey.—p. 421.
- Current Treatment of Hyperthyroidism. A. S. Mann.—p. 426.
- Hypersplenism. D. W. Hayes.—p. 429.
- Diagnosis and Treatment of Hypopituitarism. A. Segaloff.—p. 433.
- Surgical Aspects of Pancreatitis. H. Mahorner.—p. 435.
- Recent Trends in Medical Treatment of Arthritis. T. E. Weiss.—p. 440.

Hexamethonium and Hydralazine (Apresoline) Hydrochloride.—Thirty hypertensive outpatients were chosen to demonstrate the effects of hexamethonium chloride (Esomid) and hydralazine (Apresoline) on essential hypertension and their adapta-

bility to a regular regimen for the ambulatory hypertensive patient. Of this group, 21 patients had significant responses to the initial dose of 250 mg. of hexamethonium every 12 hours. Twenty-four patients complained of side-effects of the drug, and five patients refused to continue the program because of them. The effects included postural dizziness, blurring of vision, weakness, headache, and constipation; they usually disappeared after the first few weeks of treatment. Two patients had one or more syncopal attacks six weeks after the beginning of treatment. Of the 25 patients who allowed their doses of hexamethonium to be increased and combined with hydralazine, 2 had significant maintained responses and 1 was not followed up for a sufficient period to be included in the report on maintained response. It is certain that both hexamethonium and hydralazine are powerful hypotensive agents, hexamethonium being the stronger. Their ability to produce a significant initial fall in blood pressure is more reliable than their long-term effect, and the likelihood of the occurrence of the latter is unpredictable for any given patient. The authors believe that a regimen for the properly informed ambulatory hypertensive patient can eventually be worked out, but the problems arising from the administration of hypotensive agents to hypertensive patients must be further studied. These include fluctuation in blood pressure and severe consequences of hypotension or rapid fall in blood pressure, as well as the failure of the drugs themselves in the maintenance of effective relative hypotension.

Maryland State Medical Journal, Baltimore

2:573-622 (Nov.) 1953

- Management of Convalescence and Later Life After Coronary Thrombosis. W. S. Love.—p. 589.
- Treatment of Pulmonary Abscess. R. A. Cowley.—p. 593.
- Pharmaceutical Aspects of Prescription Writing. N. E. Foss.—p. 595.
- Current Views on Poliomyelitis. D. Bodian.—p. 598.
- Dione Drugs in Petit Mal Seizures. R. W. Baldwin.—p. 601.

Minnesota Medicine, St. Paul

36:1106-1200 (Nov.) 1953

- Hand and Finger Fractures. W. H. Burnam.—p. 1129.
- Wrist Injuries. E. H. Juers.—p. 1132.
- *Occult Dislocation of Ankle. D. K. Millett and M. O. Henry.—p. 1135.
- Timing of Fracture Treatment. F. S. Babb.—p. 1138.
- Accidents—Chief Killer of Children. A. B. Rosenfeld, W. Allen and E. W. Storey.—p. 1141.
- Rupture of Interventricular Septum Secondary to Myocardial Infarction. J. F. Briggs.—p. 1149.
- Cleido-Cranial Dysostosis. E. C. Paulson and N. Sterrie.—p. 1152.
- Hereditary Hemorrhagic Telangiectasis. T. Konig and J. F. Briggs.—p. 1154.
- Laboratory Diagnosis of Tuberculosis. G. M. Needham.—p. 1157.

Occult Dislocation of Ankle.—Although most ankle sprains are relatively minor injuries, occult dislocations of the ankle occur more frequently than supposed and are serious injuries. After a forcible inversion of the ankle, the lateral ligaments are often partially or completely torn, allowing the talus to dislocate from the ankle mortise without fracture of any of the bones making up the ankle joint. In all except rare cases following severe trauma, such a dislocation is reduced spontaneously by the pull of the peroneal muscles. The usual roentgenographic examination shows no fracture or deformity of the ankle joint, and the diagnosis, by exclusion, is "sprained ankle." The symptoms are similar to those of a sprain, but usually severer. Swelling and ecchymosis usually occur at the site of, and distal to, the point of injury. Pain is a usual occurrence and is aggravated by motion of the affected part, especially motion in the direction of injury. The examiner may frequently be able to palpate a sulcus below the lateral malleolus and feel the talus tip out of the mortise as he inverts the ankle in the direction of injury. Oftenest there is point tenderness over the involved ligament. Frequently a large subcutaneous hematoma develops rapidly. If occult dislocation of the ankle is suspected, diagnosis can be confirmed by an anteroposterior roentgenogram taken while the ankle is forcibly inverted in the direction of the injury; this technique is difficult. Immobilization in plaster should be used in recent dislocations; chronically unstable ankles subject to recurrent "sprains" may require surgical repair.

FOREIGN

Acta Endocrinologica, Copenhagen

14:1-92 (No. 1) 1953. Partial Index

Fractionation of Adrenal Cortex Extracts, Particularly of the Water Soluble Extracts. K. D. Voigt, W. Schroeder, I. Beckman and H. von der Werth.—p. 1.

Effect of Hexamethonium Chloride on Eosinopenic Response During Stress in Rats. B. Louwerens and P. G. Smelik.—p. 27.

Simplified Method for Determination of Neutral 17-Ketosteroids in Small Volumes of Urine. E. Birket-Smith.—p. 33.

Modifications of Carbohydrate Metabolism in Liver of Diabetic Animals and of Animals Treated with Cortisone. A. E. Renold and A. B. Hastings.—p. 47.

*Acute Adrenal Insufficiency During Pregnancy. J. Plotz.—p. 61.

Acute Adrenal Insufficiency During Pregnancy.—Plotz says that acute adrenal insufficiency develops not only in meningococcal sepsis but also in other infectious diseases. A survey of the recent literature convinced him that acute adrenal insufficiency is more frequent in pregnant and puerperal women than is generally realized. He reviews 56 fatalities in pregnant and puerperal women resulting from hemorrhage, infarction, necrosis, or thrombosis of the adrenals. Nine of these cases were observed at the Women's Clinic of the University of Hamburg and accounted for 3.6% of the obstetric fatalities. Anatomic studies disclosed extensive destruction of the adrenals, the parenchymal structure being practically obliterated. The majority of the patients died during the puerperium. The onset of the syndrome is sudden and characterized by severe collapse, cyanosis, vomiting, and abdominal or lumbar pain. Other disorders or complications in the form of toxemia, postpartum hemorrhage, puerperal septicemia, pyelonephritis, hyperemesis, pneumonia, or crush syndrome, were present in 51 of the patients. The prognosis of acute adrenal insufficiency is generally regarded unfavorable. The author suggests the following therapeutic measures: intravenous injection of 20 cc. of adrenal cortex extract, intramuscular injection of desoxycorticosterone acetate and 50 mg. of cortisone acetate, also drip infusion of dextrose and isotonic sodium chloride solutions, antibiotics to combat infection, and measures to counteract shock.

Ärztliche Wochenschrift, Berlin

8:1041-1064 (Oct. 30) 1953. Partial Index

Treatment of Uremia and Anuria, Respectively. J. Moeller.—p. 1041.

*Damage Done to the Pancreas by Carbon Tetrachloride. K. Speckmann.—p. 1051.

Experimental and Clinical Studies on Applications of Heat (Parafango di Battaglia Used as an Example). K.-H. Jahnke.—p. 1053.

Damage Done to Pancreas by Carbon Tetrachloride.—Involvement of pancreas in carbon tetrachloride poisoning is reported in a 34-year-old male nurse and in a 32-year-old female nurse who did not use protective masks when they sprayed a contact insecticide with a hand nebulizer over several rooms of a home for the aged. The insecticide contained carbon tetrachloride as carrier substance besides small amounts of γ -hexachlorocyclohexane and pyrethrum. Initial listlessness similar to alcoholic intoxication occurred in both patients. It was followed by disturbances of the liver and the circulation characteristic of carbon tetrachloride poisoning, while there was no decrease in function that might have suggested organic damage to the central nervous system. Tenderness of the enlarged liver, combined with bilirubinuria and a positive aldehyde test were observed in the man nine days after the poisoning. Toxic damage to the liver was confirmed seven weeks later by the behavior of the serum bilirubin and cholesterol and the still increased size of the organ. At the same time involvement of the pancreas was revealed by tenderness on pressure in the left epigastric region, left side Head's zone, burning pain after injection of 3 cc. of ether into the duodenum, definite ferment derangement and rise in blood sugar after the first and second dose of dextrose. On follow-up examination 10 months after the poisoning the disturbance of the pancreas had not yet completely subsided. Signs of damage, sustained by parenchyma of the liver in the woman were similar to those in the man, while indications of involve-

ment of the pancreas, although less pronounced than in the man, justified consideration of toxic damage to the pancreas. An atypical pancreatitis was observed by Moon on necropsy done in five cases of fatal carbon tetrachloride poisoning. Vegheli and co-workers produced degenerative lesions of the pancreas in rats by carbon tetrachloride.

British Journal of Cancer, London

7:283-406 (Sept.) 1953. Partial Index

Studies of Cancer Death Rates at Different Ages in England and Wales in 1921 to 1950: Uterus, Breast and Lung. P. Stocks.—p. 283.

*Mortality from Lung Cancer Among Non-Smokers. R. Doll.—p. 303.

Clinical Assessment of Tetra-Sodium 2-Methyl-1,4-Naphthohydroquinone Diphosphate as Radiosensitizer in Radiotherapy of Malignant Tumours. J. S. Mitchell.—p. 313.

Possible Mode of Transmission of Mouse Mammary Tumour Agent by Male Parent. A. Peacock.—p. 352.

Carcinogenesis in Thyroidectomized Rat. F. Bielschowsky and W. H. Hall.—p. 358.

Effect of Age of Host on Quantitative Transplantation of Sarcoma 37. H. B. Hewitt.—p. 384.

Isotope Uptake of Individual Cells: Uptake of S^{32} Sulphate by Human Bone-Marrow Cells in Vitro. L. G. Lajtha, F. Ellis and R. Oliver.—p. 401.

Mortality from Lung Cancer Among Nonsmokers.—A nonsmoker is defined as a person who has never consistently smoked for as long as one year at the rate of as much as one cigarette or 1 gm. of tobacco a day. Estimates of the mortality rates from lung cancer among nonsmokers were obtained from the Registrar-General's figures for the number of deaths attributed to lung cancer and from the data obtained in a clinical inquiry into the proportion of nonsmokers among patients with bronchial carcinoma and among patients with other diseases (excluding cancer of the oral cavity, respiratory tract, or intrathoracic organs). The assumptions required to enable the estimates to be made are bold, and the number of cases of bronchial carcinoma among nonsmokers is small. The rates obtained are, therefore, highly speculative, but it is thought that they are likely to be reasonably reliable since they are consistent with other experience. It is concluded (1) that one in five of the lung cancer deaths that occurred in persons aged 25 to 74 years, in 1950, may be attributable to causes other than smoking; (2) that the incidence of lung cancer in nonsmokers may be the same in men and in women and in residents in areas of different density of population; and (3) that occupational hazards and the previous occurrence of certain respiratory diseases are unlikely to be of frequent etiological importance.

British Journal of Experimental Pathology, London

34:471-582 (Oct.) 1953. Partial Index

Chemical Basis of Virulence of Bacillus Anthracis. H. Smith, J. Keping and J. L. Stanley.—p. 477.

Serum Antibodies in Mumps. B. G. Ray and R. H. A. Swain.—p. 501.

Effects of Ethyl Ether on Some Biological Properties of Influenza Virus. W. Smith, H. Cohen, G. Belyavin and J. C. N. Westwood.—p. 512.

Serological Procedure Theoretically Capable of Detecting Incomplete or Non-Precipitating Antibodies to Soluble Protein Antigens. R. R. A. Coombs, A. N. Howard and L. S. Mynors.—p. 525.

*Effects of Cortisone and Adrenocorticotrophic Hormone on Dispersion of Bruises in Skin. R. H. Lovell, G. B. D. Scott, B. Hudson and J. A. Osborne.—p. 535.

Fractionation of Lipids Which Inhibit Haemagglutination. E. C. Clark, G. H. Lathe and C. R. J. Ruthven.—p. 542.

Effect of Staphylococcal Filtrates on Isolated Rabbit Small Intestine, with Special Reference to Enterotoxic Strains of Staph. Pyogenes. K. Anderson.—p. 548.

Study of Treponema Immobilizing Antibody in Syphilis. C. W. Chacko.—p. 556.

Haemolysin of Clostridium Histolyticum. J. G. Howard.—p. 564.

Tubercle Bacilli Resistant to Isoniazid: Virulence and Response to Treatment with Isoniazid in Guinea-Pigs and Mice. M. Barnett, S. R. M. Bushby and D. A. Mitchison.—p. 568.

Effects of Cortisone and Corticotropin on Skin Bruises.—Lovell and his associates point out that Cushing in 1932 described hemorrhages in the skin as a feature of the syndrome that bears his name. Apparently spontaneous bruises also occur in some patients receiving cortisone and corticotropin. When Lovell and associates first saw these lesions in two patients,

one receiving cortisone and the other corticotropin, they thought the discoloration persisted for an unusually long time. Bruises produced by venipuncture also disappeared very slowly. The observations led them to study the effects of cortisone and corticotropin on the dispersion of bruises induced experimentally in the skin. Studies in man confirmed their original observation; the hormones delayed dispersion of experimental bruises, and delay also occurred in Cushing's syndrome. In guinea pigs bruise dispersion was likewise delayed by cortisone. The results of histological studies make it unlikely that the effect can be attributed to impairment of macrophage activity. The effect may be due to impaired lymphatic removal of erythrocytes or to altered resistance to their dispersion through the ground substance of connective tissue.

British Journal of Plastic Surgery, Edinburgh

6:149-240 (Oct.) 1953. Partial Index

- *Reactions of Healing Wounds and Granulation Tissue in Man to Auto-Thiersch, Autodermal, and Homodermal Grafts, with Analysis of Implications of Phenomena Encountered for Understanding of Behavior of Grafted Tissue and Genesis of Scars, Keloids, Skin Carcinomata, and Cutaneous Lesions. T. Gillman, J. Penn, D. Bronks and M. Roux.—p. 153.
Pathology of Dupuytren's Contracture. R. F. Warren.—p. 224.
Surgical Treatment of Suppurative Hidradenitis. D. W. Williams.—p. 231.

Reactions of Tissues to Thiersch and Other Grafts.—This extensive report is concerned with the spontaneous healing in man of Thiersch donor sites, of long-standing exuberant granulations following burns and of the response in wounds and the alterations in the healing process in such injuries induced by the application to them of auto-Thiersch grafts and/or autodermal and/or homodermal grafts. This analysis is based on the clinical study of 3 patients with burns, of 30 patients who had had various types of grafting operations performed, and of experiments conducted on 6 volunteers. The histological material examined comprised a total of 36 biopsies of healing Thiersch graft donor sites and of granulation tissue treated with Thiersch and other types of grafts, 48 biopsies taken from the volunteers at different time intervals after the operation of Thiersch graft removal, and the application of various types of grafts to the donor sites and 15 biopsies of scars and keloids of various ages. Most of the material studied histologically was serially sectioned. Comparing the histological appearances of Thiersch donor sites at various times up to eight years after removal of such grafts with the original histological appearance of the skin of the graft donor site revealed that even after eight years the skin in the graft donor site is not reconstructed to acquire its original morphology. The histogenesis of the healing process in the Thiersch donor site is described. Long-standing exuberant granulations, which develop in burn sites, undergo radical morphological changes after the application of auto-Thiersch grafts, autodermis, or epithelium. The epithelium of Thiersch graft "stamps" applied to such granulations becomes markedly acanthotic, invades the underlying fresh granulations, forms epithelial pearls, and also grows across the neighboring granulations. The epithelial connective tissue relations in healing wounds indicate that the healing of a wound is dependent on the maintenance of a very delicate balance of relations between the connective tissues and the epithelium. The significance of the described changes for an understanding of the etiology and pathogenesis of normal scars, hypertrophic scars, keloids, epithelial neoplasms, and other dermatological conditions is discussed. It is suggested that the supervision of scars in sites of injuries is determined in large measure by the depth of the lesion that affects the nature of both the connective tissue and the epithelial responses to injury. This effect of deep lesions is not dependent so much on the extent of epithelial or dermal destruction as on the alteration in connective tissue-epithelial relations in wound healing induced by a deep wound. Some of the local and systemic hormonal factors affecting the nature of the healing process are discussed. The possible role of damage to dermal tissue, as opposed to epithelial irritation, in relation to the etiology and pathogenesis of irradiation injuries, lupus, and carcinomas of the skin are also discussed.

British Medical Journal, London

2:1059-1114 (Nov. 14) 1953

- *Valvotomy in Treatment of Mitral Stenosis. T. H. Sellors, D. E. Bedford and W. Somerville.—p. 1059.
Chloramphenicol Treatment of Bronchiectasis in Children. A. W. Franklin and L. P. Garrod.—p. 1067.
In-Vitro Sensitivity of *H. Influenzae* to Five Different Antibiotics. K. Zinnemann.—p. 1069.
Prognosis and Role of Surgery in Spontaneous Intracranial Haemorrhage. J. M. Small, J. M. Holmes and R. C. Connolly.—p. 1072.
Review of Mental Illness in Older Age Group. E. E. Robertson and N. L. M. Browne.—p. 1076.
Effects of Testosterone Implants in Men with Defective Spermatogenesis. G. I. M. Swyer.—p. 1080.
Abdominal Topography in Relation to Senile Osteoporosis of the Spine. R. V. Dent, M. D. Milne, N. J. Roussak and G. Steiner.—p. 1082.
Actinomycosis in Scotland. I. A. Porter.—p. 1084.
*Specific Bacteriolysin in Subacute Bacterial Endocarditis Caused by Haemolytic *Staphylococcus Albus*. M. M. O'Hare and J. S. Stevenson.—p. 1086.

Valvotomy for Mitral Stenosis.—Mitral valvotomy was performed on 31 men and 119 women between the ages of 19 and 57 years with mitral stenosis. Four of the 150 patients operated on died within four days as a direct result of the operation, an immediate operative mortality of 2.7%. Four patients died of various causes one month or longer after the operation. Of the 150 patients, 111 were followed up for five months to two and a half years. Good results with relief from symptoms, such as paroxysmal dyspnea, orthopnea, and hemoptysis, and a considerably increased capacity for effort were obtained in 81 (74%) and only fair or poor results in 22 (20%). The remaining 39 patients have been operated on within the last three months; all have made satisfactory progress, but it is too early to evaluate the results. Sixty-two (41%) of the 150 patients had auricular fibrillation; the functional results obtained in these patients were as good as in those with sinus rhythm, but 3 of the 4 operative deaths occurred in fibrillating patients. The basic indication for mitral valvotomy is disability from mitral stenosis of an anatomic form that is amenable to surgical correction. This type of stenosis in which the two segments of the mitral valve are united and stretched like a diaphragm across the auriculo-ventricular opening and, apart from the thickened orifice, the mitral diaphragm is relatively pliant (pliant diaphragmatic valve), gives rise to characteristic clinical signs by which it may be recognized as follows: a snapping apex beat, a snapping first sound (closing snap), and a loud opening snap of clicking quality following closely the second sound. Additional evidence of severe mitral stenosis is provided by intense diastolic and presystolic murmurs, a sustained pulse, and a small hypoplastic aorta in the radiogram. The most important consequence of pulmonary hypertension is right ventricular enlargement and the size of the right ventricle, as determined by clinical, radiological, and electrocardiographic findings, provides a more valuable index to the degree of pathological change resulting from mitral stenosis than does the level of the pulmonary arterial pressure at a given moment. Cardiac catheterization is no longer required as a routine measure in the selection of patients suitable for mitral valvotomy. Selection may now be made on a basis of the symptoms and of the data provided by routine cardiological examination. The authors' patients selected for operation on grounds of an operative valve were classified according to the size of the right ventricle and the presence of congestive failure. Patients with large hearts and congestive failure that did not respond to treatment benefited least from valvotomy. When free splitting of the commissures was achieved, 84% of the patients obtained good symptomatic relief; when valvotomy was judged at operation to be less satisfactory, only 46% of good results were obtained. Nevertheless, partial splitting of the valve does not preclude satisfactory clinical improvement. Good results were obtained alike in those with greatly elevated pulmonary arterial pressures and in those with a slight or moderate elevation.

Specific Bacteriolysin in Subacute Bacterial Endocarditis.—A case of subacute bacterial endocarditis in a 33-year-old woman with persistent anemia (7 gm. hemoglobin per 100 cc.) is described in which there was serologic evidence that the

causal organism was a hemolytic coagulase-negative strain of *Micrococcus* (*Staphylococcus*) *albus*. In vitro tests showed that the organism was sensitive to penicillin; 1,000,000 units of penicillin was given daily for five weeks. The patient's condition improved dramatically with this therapy. For some months she continued to be well, but then was readmitted to hospital with severe decompensation. Gross cardiac failure developed and death occurred. Permission for necropsy was refused. The striking feature of the strains of *M. albus* isolated from the patient's blood cultures was the degree of hemolysis produced on blood agar. The patient's serum was studied for antibody content. Results showed that the serum did not contain any agglutinins but that a bacteriolysin was present, which was evidently specific for the *Micrococcus* isolated from the blood cultures. The anemia of the patient was undoubtedly due to the hemolytic activity of the *Micrococcus*. The development of specific bacteriolysin does not appear to have been reported in other similar cases and may be a purely isolated finding. Absence of postmortem data makes it difficult to assess the effect of the septicemia on the course of the patient's illness, but the degree of cardiac damage was so great that it is feasible to assume that early death was inevitable, irrespective of the blood infection.

Giornale Italiano di Chirurgia, Naples

9:455-526 (July) 1953. Partial Index

Modifications of the Difference Between Arterial and Venous Oxygen in Patients with Arteritis Obliterans Subjected to Various Stimulations and Therapies. C. Tattoni, C. Malchiodi and S. Serrano.—p. 455.

Closure of Bronchus After Pulmonary Exeresis with New Method of Covering the Bronchial Stump with Pleuropulmonary Grafts from Removed Part: Technical and Experimental Contribution. C. Mauro and N. Boscaino.—p. 468.

*Cholechochoplasty with Polyethylene Tube. R. Palomba.—p. 495.

Polyethylene Tubes in Cholechochoplasty.—Polyethylene tubes proved satisfactory in plastic surgery of the biliary tracts. Their use was especially valuable when surgery was performed for stenosis of the common bile duct and Oddi's sphincter. In such cases plastic surgery over the polyethylene tube inserted through the papilla is preferable to the use of temporary external drainage tubes. Removal of rubber tubes may be difficult and may cause complications such as fistula and secondary cicatricial stenosis. The author cites two cases in which he used this technique and obtained good results. An inflammatory sclerosis of the sphincter of Oddi was present in the first patient, a 69-year-old woman, in whom surgery had previously been performed for biliary lithiasis. A sphincterotomy and plastic surgery of the opening of the common bile duct were performed. To insure good internal drainage of the bile and to facilitate normal healing of the opening of the common bile duct, a polyethylene tube was inserted into it. There were no side-effects attributable to the presence of the polyethylene tube, and a follow-up five months later indicated perfect restoration of the bile flow. In the second patient, a 59-year-old man, the duodenal opening of the common bile duct was obstructed by an adenocarcinoma of the papilla of Vater. The tumor was removed, the common bile duct was sutured circularly to the duodenal mucosa, and a polyethylene tube, opening into the duodenum, was inserted. Since a local recurrence of the tumor was feared, a cholecystogastrostomy was performed. The presence of the tube was well tolerated, and an optimum flow of bile into the digestive tract was obtained. It was difficult, however, to evaluate how much the good results in this patient were to be ascribed to the transpapillar drainage through the polyethylene tube and how much to the cholecystogastrostomy.

9:527-590 (Aug.) 1953. Partial Index

Use of a Cholinergic Preparation in Radiological Exploration of Lower Part of Esophagus. C. Mauro and D. Catalano.—p. 527.

Evaluation of Adrenal Function in Surgical Patients with Thorn's Test. S. Riccio and A. Giardiello.—p. 533.

*Experimental Contribution to Study of Action of Ganglioplegics Used for Controlled Hypotension. E. Genazzani and A. Russo.—p. 547.

Action of Ganglioplegics in Controlled Hypotension.—The authors performed a series of experiments on rabbits to establish (1) the acute toxicity of bitartrate of hexamethonium, (2) its true efficacy in determining hypotension and abolishing

vasomotor reflexes, and (3) the influence of various anesthetics on the pharmacological activity and the toxicity of this salt. The drug administered intravenously in divided and successive doses killed the animals that had not been anesthetized with doses of 53.52 mg. per kilogram of body weight. The animals that received the salt by intravenous perfusion at a constant velocity died with an average dose of 44 mg. per kilogram of body weight. All the anesthetics used (urethane, chloroform, ether, and Farmotal) increased the toxicity of the salt. Animals anesthetized with Farmotal died with a dose of 6.24 mg. per kilogram of body weight. The drug had a depressing action on the respiration, and this action was more pronounced in those animals in which anesthesia was obtained with drugs that inhibited the respiratory center. Caution should be used in administering these drugs to patients whose respiratory function is impaired. As for the efficacy of the salt to determine a lasting and controllable hypotension, in no case was it possible to obtain a constant, marked, and lasting hypotension even when the doses were gradually increased. Moreover, especially in the animals that had not been anesthetized and in those that received urethane, the arterial pressure always had a tendency to return to elevated values. The specific ganglioplegic action was studied with reference to the carotid sinus reflexes and the reflexes of posture. The drug never had a paralyzing action on them, and, although the smaller doses inhibited them, elevated doses brought them back to normal and sometimes increased them. The authors doubt the value of these actions and they suggest caution in using them in the anesthesia field.

Journal of Irish Medical Association, Dublin

33:122-154 (Nov.) 1953

*Tuberculous Meningitis. J. Murphy.—p. 122.

Duodenal Fistula. T. O'Neill.—p. 135.

Differential Diagnosis of Haemoptysis and Its Management. C. S. Breathnach.—p. 139.

Shortcomings of Obstetric Service of National Health Scheme in Great Britain. J. G. O'Sullivan.—p. 147.

Tuberculous Meningitis.—Tuberculous meningitis is essentially a disease of children, usually associated with or derived from the primary tuberculous infection that generally occurs in childhood or young adult life. Of the author's 12 patients with tuberculous meningitis, 4 were less than 3 years of age, 1 was between 3 and 5 years, 2 were between 5 and 9 years, and 5 over 9 years. All 12 patients had positive reactions to tuberculin tests. Four of the 12 patients had miliary tuberculosis, which is also an early complication of the primary infection and usually occurs before meningitis. The prognosis is much worse in the presence of miliary spread. Early clinical manifestations of tuberculous meningitis frequently consist of vague abdominal pain and vomiting that are suggestive of an abdominal rather than a neurological lesion. When tuberculous meningitis progresses, signs and symptoms of meningeal irritation and increased intracranial pressure develop; severe headache and generalized convulsions are common. Repeated lumbar puncture is essential to detect latent tuberculous meningitis. The author used lumbar puncture routinely without ill-effect at two week intervals during the first three months and monthly during the subsequent three months. Tubercle bacilli were found on direct examination of the cerebrospinal fluid in 8 of the 12 patients, and by culture in 1. Eight of the 12 patients died, and in 3 tubercle bacilli were not recovered. Treatment with streptomycin should not be withheld on the failure to find the organisms, if other aspects of the case support the diagnosis. Streptomycin and *p*-aminosalicylic acid are accepted as the standard form of treatment. There can be no hard and fast scheme of dosage or rhythm of injections. The present trend tends toward a longer total period of treatment with more frequent rest periods, i. e., intramuscular administration for six months with rest period commencing at the end of the second month, and intrathecal treatment for four and a half months with rest period commencing at the end of the second month. Systemic treatment should not be stopped until the sugar level of the cerebrospinal fluid has reached 50 mg. per 100 cc. Hyaluronidase

mixed with streptomycin was given intrathecally to three patients with spinal block, but it is difficult to assess its value in this small number of patients. A 20% solution of *p*-aminosalicylic acid sodium in doses of 7.5 cc. was administered intrathecally on alternate days to a 14-year-old boy with prolonged pyrexia in addition to *p*-aminosalicylic acid orally and dihydrostreptomycin intramuscularly and intrathecally. The patient's temperature was restored to normal within a few days and remained normal. Isoniazid was used in one patient with definite benefit and no apparent side-effects. Four (33.3%) of the author's patients recovered. The average recovery rate in this series and in four additional series of patients collected from the literature was 50%. Improved results will not necessarily depend on the discovery of new drugs. Earlier diagnosis, to limit the formation of basal exudate and to prevent irreparable brain damage, must again be stressed. The wider use of BCG vaccination should help to lower the incidence of the disease in the younger age groups. Tuberculous meningitis is a combined problem and involves the cooperation of the general practitioner, hospital medical staff, and public health authorities.

Klinische Wochenschrift, Berlin

31:873-920 (Oct. 1) 1953. Partial Index

- Role of Kidney in Carbohydrate Metabolism. A. Kleinschmidt.—p. 873.
 Demonstration of Mycobacterium Tuberculosis by Means of Phase-Contrast Microscope. G. Poetschke, M. Lewandowski and S. Mauch.—p. 879.
 Modification of Basophil Stippling of Erythrocytes by Vitamin B₁₂. H. Kleinsorge and K. Rösner.—p. 880.
 *Influence of Folic Acid on Absorption of Iron. H. Begemann, W. Keiderling and F. Walter.—p. 881.
 Pulmonary Circulation in Mitral Stenosis. H. J. Hauch.—p. 883.
 Combined Cortisone and Penicillin Therapy in Experimental Streptococcal Infections. A. Lützenkirchen.—p. 895.

Influence of Folic Acid in Absorption of Iron.—Begemann and associates describe studies on healthy subjects and on persons with various disturbances that were designed to ascertain whether and under what conditions folic acid promotes the enteral absorption of iron. Iron was administered in the form of 200 mg. of ferrous sulfate. It was found that the increased absorption of iron that prevails in conditions of iron deficiency is further improved by the administration of folic acid. The absorption of iron was improved also in patients with gastric anacidity or subacidity, that is, in conditions in which the absorption of iron is greatly impaired. The tolerance for orally administered iron is greatly improved by the simultaneous administration of folic acid. The mode of action by which folic acid improves the resorption of iron, however, is not yet fully explained, but since it is known to promote the absorption of other substances, it is assumed that folic acid acts by modifying cellular permeability. The authors were interested chiefly in ascertaining the influence of folic acid on iron resorption and thus to clarify the indications for its therapeutic administration.

Lancet, London

2:1001-1052 (Nov. 14) 1953

- Treatment of Asphyxia Neonatorum. J. M. Lord, B. W. Powell and H. Roberts.—p. 1001.
 *Therapeutic Trial of Synthetic Heparin Analogue Dextran Sulphate. C. R. Ricketts, K. W. Walton, B. D. van Leuven and others.—p. 1004.
 *Hypothermia: Experimental Study of Surface Cooling. H. C. Churchill-Davidson, I. K. R. McMillan, D. G. Melrose and R. B. Lynn.—p. 1011.
 Necrotising Enteritis Following Gastric Surgery. M. R. Williams and J. M. Pullan.—p. 1013.
 Growth of Clostridium Welchii in Stomach After Partial Gastrectomy. J. W. Howie, I. B. R. Duncan and L. M. Mackie.—p. 1018.
 Ischaemic Necrosis of Stomach, Following Subtotal Gastrectomy. A. G. Rutter.—p. 1021.
 Humidification in Positive-Pressure Respiration for Bulbospinal Paralysis. J. Marshall and J. M. K. Spalding.—p. 1022.

Dextran Sulfate: Synthetic Heparin Analogue.—The naturally occurring anticoagulant, heparin, is the sulfuric ester of a complex polysaccharide. Some investigators showed that the sulfuric esters of other polysaccharides have a similar but

weaker anticoagulant activity. Sulfuric esters were prepared from dextrans of various molecular weights by Grönwall and associates who reported that the toxicity of their compounds declined as the molecular weight decreased; but they did not produce a satisfactory therapeutic compound. Further studies on dextran sulfate revealed that molecules of optimum size and sulfur content, though less potent, weight for weight, than commercial heparin, behaved in a qualitatively similar biological fashion and showed comparably low toxicity. The results obtained with dextran sulfate in the first three cases were considered sufficiently encouraging to warrant further trial. Material was supplied to three centers with considerable experience of anticoagulant therapy with heparin, for independent assessment. The response in the 24 persons to whom dextran sulfate was administered during the various clinical trials indicates that dextran sulfate serves as an effective anticoagulant in clinical practice. The clotting time response to intravenous injection resembled that to equipotent doses of heparin in that intermittent dosage produced a "picket-fence" curve, and continuous infusion gave a smooth curve adjustable to any given level by appropriate adjustment of the rate of administration. The most noticeable difference was that of duration of effect. Heparin administered intravenously in a dose of 5,000 I. U. prolonged the clotting time for two or three hours; the equivalent dosage of dextran sulfate produced an effect for five to seven hours. The material used in the clinical trials was assayed in terms of heparin units. This was an interim measure for the convenience of clinicians accustomed to heparin dosage and to facilitate the comparison of equipotent doses of the two anticoagulants. In view of the observed difference in duration of effect a sample of dextran sulfate has been submitted to the World Health Organization Committee on International Biological Standards with a proposal that a provisional standard be established for dextran sulfate itself. No serious side-effects have been observed.

Hypothermia: Experimental Surface Cooling.—The difficulty of maintaining an adequate flow of oxygenated blood to the vital organs during complex surgical operations is one barrier to further advances in cardiac and cerebral surgery. Hypothermia, by reducing the body temperature and consequently the metabolism, is one means of attaining this end that has been used on a limited scale for many years. Surface cooling appeared to be the simplest and safest method. An investigation was undertaken to reassess the possible dangers before its application to surgery in man. Thirty unselected mongrel dogs weighing 8 to 15 kg. were used. After the dogs had been anesthetized and the trachea intubated, control readings of body temperature, pulse rate, blood pressure, electrocardiogram, and oxygen consumption were taken. The dog was next immersed in a bath of water at about 18 to 20 C (64 to 68 F). Crushed ice was added after a few minutes so that the temperature of the water rapidly fell to 2 to 6 C (36 to 42 F). Twenty dogs (series 1) were cooled in this manner until their rectal temperature had fallen to 24 C (75.2 F), when they were stabilized at 22 to 24 C (72 to 75.2 F) for at least 30 minutes before being rewarmed. Ten dogs (series 2) were cooled in an identical manner to 28 to 26 C (82 to 78 F) for a similar period and then rewarmed by raising the temperature of the water in the bath to 42 C (107 F). On the basis of these investigations the authors arrive at the following tentative conclusions: 1. Surface cooling is the simplest method of inducing hypothermia. 2. Until some method is found to prevent ventricular fibrillation, the body temperature should not be reduced below 26 C, and in all cases in which hypothermia is used continuous electrocardiograms should be displayed. 3. Hypothermia may offer an advance in surgery for operations requiring temporary occlusion of the great vessels, but the increased "irritability" of the cardiac muscle at temperatures of 25 C (77 F) and below is the chief risk of operations on the heart under these conditions. The age of the animal is of particular importance, for the younger the animal the greater the margin of safety.

Lille Chirurgial8:147-202 (July-Oct.) 1953. **Partial Index**

- *Our Experience with Surgery of Aneurysms of the Internal Carotid and Its Branches Since Using Ganglion Blocking Agents. Laine, Delandtsheer and Delandtsheer.—p. 147.
 Can Tuberculosis of the Kidney Be Cured by Medical Means? Macquet, Wemeau, G. Lemaître and DeFrance.—p. 161.

Surgical Treatment of Aneurysms of Internal Carotid and Its Branches.—The treatment of intracranial aneurysms is still hazardous in spite of the efforts at improvement made by neurosurgeons. Pedicled aneurysms can often be removed fairly easily after ligation or clipping of the pedicle, but aneurysms of the internal carotid or the basilar trunk and their branches are almost always sessile, and attempts to exclude them by the use of clips are certain to fail. Various neurosurgeons, including the authors, have tried to halt the progressive distention of the aneurysmal sac and to prevent its rupture by sheathing it with a layer of muscle. This procedure apparently improves the outlook for most patients, but it does not provide absolute assurance against rupture and it is always difficult and dangerous to carry out. Palliative treatment in the form of carotid ligation is, therefore, relied on by most neurosurgeons, although it too may be accompanied or followed by serious or even fatal accidents. Circulatory decompensation resulting in hemiplegia might also develop as a late result of carotid ligation. The continued efforts of the authors to treat intracranial aneurysms by direct approach have been greatly helped by the use of ganglion blocking agents. The dangers of cerebral ischemia can be avoided by not attempting to secure a completely bloodless operation. The results obtained in a new series of 14 patients operated on under conditions of controlled hypotension have been highly encouraging. There were only two deaths, and these occurred in comparatively old, arteriosclerotic patients. Neurological complications followed the operation in two cases, but regressed to the point where they no longer interfered with normal living. Preoperative neurological complications, however, such as hemiplegia, aphasia, and hemianopsia, did not always respond satisfactorily, and in one case they were so severe that the patient remained bedridden. Every effort should be made to discover intracranial aneurysms in time to prevent the recurrence of hemorrhage. Arteriograms should be made within four or five days after the first accident. All the arterial territories can easily be explored by percutaneous arteriography, and, if, as rarely happens, there is no neurological sign to point to the seat of the aneurysm, they should be investigated one by one until it is found. Only in this way can the patient be operated on while still in good condition and with an improved operative prognosis.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam97:2641-2700 (Oct. 10) 1953. **Partial Index**

- Familial Form of Xanthomatosis Tuberosa. J. W. Bruins.—p. 2651.
 *Aids in the Diagnosis of Pheochromocytoma. J. de Graeff, A. A. H. Kassenaar and A. Querido.—p. 2658.

Diagnosis of Pheochromocytoma.—The case history presented by de Graeff and associates emphasizes how important it is to think of the possibility of pheochromocytoma whenever hypertension is discovered. The patient was a woman, aged 23. The first attack of severe headache appeared three years previously, and such attacks recurred at constantly shorter intervals. There was hypertension and tachycardia, severe pathological changes in the retina, and normal renal function. At first malignant hypertension was suspected, and treatment with a methonium preparation was instituted, but the blood pressure increased rather than decreased. The intravenous injection of 12.5 mg. of piperoxan was followed by a decisive fall in blood pressure, which in turn was followed by the hypertensive "overshoot." Bimanual palpation revealed a mass on the right kidney. Palpation of it caused extremely unpleasant sensations, the patient's skin became clammy and ash-colored, she complained of a bursting headache, and her blood pressure rose to 280/180 mm. Hg, whereas before the bimanual examination it was 170/120. The result of the intravenous injection of 1 mg. of regitine was comparable to that of 12.5 mg. of piperoxan. The "overshoot" after the initial decrease

in blood pressure caused some anxious moments. A brownish-red, highly vascular tumor the size of a tennis ball was removed from the right adrenal, and immediately afterward the blood pressure fell to 110/70. The tumor weighed 120 gm. and contained 650 mg. of arterenol (nor-epinephrine). The authors stress the value of the aforementioned drugs and of an increase of pressor amines in the urine as important aids in the diagnosis of pheochromocytoma. In the case described the pressor amines showed a twentyfold increase.

Policlinico (Pract. Sect.), Rome

60:1265-1296 (Sept. 14) 1953

- *Research Studies on Resistance of Pathogenous Staphylococci to Some Antibiotics with Particular Reference to Penicillin. L. Ortona.—p. 1265.
 Fractures of Base of First Metacarpus. A. Motta.—p. 1274.

Staphylococci and Their Resistance to Antibiotics.—Resistance of micrococci (staphylococci) to antibiotics, especially penicillin, was studied in 100 patients with pyogenous infections. The role played by antibiotic therapy in the causation of this resistance and the results obtained in the treatment of patients with these infections were also studied. Pus, urine, buccopharyngeal mucus, and sputum taken from patients with abscesses, boils, osteomyelitis, urinary infection, and bronchopneumonia were planted on an agar-blood culture plate and were placed in a thermostat at 37° C for 24 hours. A bacteriological examination of these cultures revealed the presence of *Micrococcus* (*Staphylococcus*) *aureus* in 56 of them and *Micrococcus albus* in 21; there were *Bacterium coli* in five, *Bacillus pyocyaneus* in two, and *Streptococcus pyogenes* in four; and there were no bacteria in 12. Of the 77 *Micrococcus* strains, 72 were coagulase positive. Maximal resistance to penicillin was found in 15 strains and relative resistance in 7; 18 of these strains were of the *aureus* type and 4 of the *albus* type. There was resistance in 11 of 18 strains obtained from patients in whom penicillin therapy had been carried out before the micrococci were isolated, and in 11 of 54 strains obtained from patients in whom no therapy was carried out previous to isolation of the bacteria. The clinical course of the infection was followed in 16 of 22 patients in whom penicillin resistance had developed. The drug was not effective in 11 patients in whom the micrococci were resistant to concentrations greater than 10 Oxford units per cubic centimeter. It was effective in five patients with relative resistance when administered in large doses and for long time. As for other antibiotics, maximal resistance to streptomycin was found in two strains and relative resistance in five. Relative resistance to chlortetracycline (Aureomycin) and oxytetracycline (Terramycin) was found in three strains respectively. All the strains were sensitive to chloramphenicol (Chloromycetin), and the 35 that were tested for bacitracin were all sensitive to it. It is suggested that chloramphenicol be used to treat patients with penicillin-resistant micrococcal infections. The combination of antibiotics with a synergistic action may give even better results. The sensitivity of the bacteria to the antibiotics should always be tested before their administration.

Presse Médicale, Paris61:1417-1438 (Nov. 4) 1953. **Partial Index**

- *Attempt at Transplantation of Kidney in Man: Medical and Biological Aspects. L. Michon, J. Hamburger, N. Oeconomos and others.—p. 1419.
 Chemical Agents and Dysmenorrhea: Attempt at Therapy by Endometrial Application. M. Perrault, F. Kirsch and P. Cornu.—p. 1424.
 Mixture of Three Insulins (Ordinary, Protamine Zinc, and Neutral Protamine Hagedorn) in Single Daily Injection for Treatment of Insulin-Unstable and Insulin-Resistant Diabetes. P. Boulet, J. Mirouze and C. F. de Laclous.—p. 1428.
 Fatigue: Symptom of Adrenal Dysfunction. M. R. Rivoire, J. Rivoire and M. J. Poujol.—p. 1431.

Transplantation of Kidney.—In a 16-year-old carpenter, a right nephrectomy was performed for injuries following a three story fall from a scaffolding. His postoperative condition appeared to be good, but there was total anuria. Six days after the accident, a diagnosis of aplasia of the left kidney was made and confirmed roentgenologically. The next day, the normal right kidney of the boy's mother was removed and embedded

in his external right iliac region. The graft was anastomosed to the stump of the ureter left after nephrectomy, and continuity was restored by means of a ureteral catheter that had been inserted before the intervention and that was now pushed up to the kidney pelvis. For 21 days after this operation, the transplanted kidney functioned excellently; then, abruptly, another period of total anuria began. This led to death in a convulsive state of azotemia 11 days later (exactly 40 days after excision of the original single kidney). The 21 day interval of normal functioning of the homograft before the onset of the anaphylactic reaction coincides with the time lapses experienced in other cases of renal transplantation in man and animals reported in the literature. This case differs from all previous ones, however, in that the close kinship of donor and recipient, and similarity in their blood types, establish unusually favorable conditions for the transplant. Other favorable factors were the lack of previous renal disease and of local complications and excretory dysfunction. During the time that the transplanted kidney was functioning, the process was normal with regard to diuresis, cytology of the urine, rate of voiding, urea concentrations of both blood and urine, and tubular resorption as evidenced by electrolyte excretion. Only three things are worthy of mention as possible warning signs: a slight, but regularly progressive, tendency toward elevation of the blood pressure, a progressive hypergammaglobulinemia, and a slight proteinuria appearing in the last few days before the unusually violent onset of the apoplectic phenomena involving the graft. The kidney became enormously enlarged within a matter of seconds, total anuria developed, and irreversible vascular, interstitial, glomerular, and tubular changes occurred. The exact mechanism of this attack is not known.

Revue Neurologique, Paris

89:165-244 (No. 3) 1953. Partial Index

- *Wilson's Disease (Genealogical, Clinical, and Metabolic Investigations Affecting 60 Members of a Family). G. Heuyer, A. Baudouin, H. Azima, and others.—p. 165.
- Case of Hypertrophic Neuritis Accompanied by Hemispheric Degeneration and Malformations. I. Bertrand, S. Thieffry and E. Bargeton.—p. 182.
- Very Late Myelopathy Following an Odontoid Fracture with Atlanto-axoid Luxation. L. Barraquer-Bordas, L. Barraquer-Ferré, F. Duran and others.—p. 193.

Wilson's Disease (Hepatolenticular Degeneration).—The material for this study consisted of a 14-year-old girl with typical, fatal hepatolenticular degeneration and her entire family, comprising 63 members in four generations. The patient's illness, which began with choreic symptoms first noted in January, 1951, after an attack of influenza, progressed steadily until her death 23 months later. Treatment with dimercaprol [BAL] was tried without success. Investigation of the family showed that one of the patient's brothers had also died of typical hepatolenticular degeneration; another brother had died, while the family were refugees, of an unidentified fulminating disease that may have been an ascitic form of this condition; a sister, expatriated to Algeria, had died of a condition diagnosed as hepatic icterus that may have been hepatolenticular degeneration; and two infant siblings had died of meningitis and bronchopneumonia respectively. Seven living members of the family refused to participate in the study, and two had been lost sight of. Twenty-five others who were apparently in good health and fully cooperative were studied in respect to amino acid and copper metabolism. Determinations were made of the total copper, globulin copper, and total iron levels in the blood and of the copper and amino acids in the urine. The figures for total copper were above normal in two subjects and subnormal in three, but the variations were not pronounced enough to indicate a significant disturbance. Subnormal globulin copper levels were detected in six subjects. No significant disturbances were found in the amino acid or iron metabolism. Very few abnormalities were disclosed by the tests, but it must be remembered that none of the subjects studied had hepatolenticular degeneration. The clinical and biological symptoms characteristic of hepatolenticular degeneration all appeared concomitantly in the author's patient, supporting the belief that they must all be present if a diagnosis of typical hepatolenticular degeneration is to be maintained.

It may be that the disturbances in question each represent a distinct hereditary dysgenesis and that typical hepatolenticular degeneration occurs when these factors, appearing in combination in a single person, become operative under the stress of life.

Rivista di Clinica Pediatrica, Florence

52:1-76 (July) 1953

- A Particular Case of Systemic Reticulohistiocytary Granuloma: Acute Aleukemic Hyperplastic Adenic-Splenic-Hepatomegalic Reticuloendotheliosis Involving Thymus, Peyer's Patches, Solitary Follicles, Lung, and Basilar Leptomeninges. A. Gentili and M. Lopez.—p. 1.
- *Injection of Gamma Globulin and Procaine into Aorta and Veins in Treatment of Acute Anterior Poliomyelitis. F. Ragazzini, M. Giusti, A. Pazzaglia and others.—p. 44.
- Salmonellosis in Picture of Infantile Diarrheas. W. Tangheroni.—p. 47.

Gamma Globulin and Procaine in Poliomyelitis.—Since May, 1951, the authors have been treating patients with poliomyelitis by injecting gamma globulin into the aorta and procaine into the veins. Their aim is to establish with the gamma globulin an intense passive immunization in the initial acute phase of the disease and with the procaine a protective action on the neurovascular apparatus during the same phase of the disease and a peripheral eutrophic action on the neurovascular apparatus during the phase of recovery and convalescence. They classify their patients as having severe cases when both legs are involved, very severe cases when there is bulbar localization and all four extremities are involved, moderate cases when more than one group of muscles is affected in one leg, and mild cases when only one group of muscles is affected. They inject from 4 to 14 cc. of gamma globulin into the aorta (sometimes with plasma) after an injection of from 5 to 10 cc. of procaine also into the aorta. This is repeated three or four times on the following days. Concurrent intravenous administration of procaine is carried out three to four times daily and is supplemented with antibiotics, vitamins B₁, C, and E. This therapy is continued for three or four 15 to 20 day courses. When injections into the aorta are too dangerous for patients in whom all the extremities are involved, the intravenous route alone is used; in mild cases the gamma globulin is injected intramuscularly. In few instances in which the authors injected small quantities of gamma globulin intrathecally, it was tolerated well, but the cellular reaction of the fluid was marked. Physical therapy with massage, galvanotherapy, occupational therapy, and sometimes application of appropriate orthopedic apparatus are used in some patients after the painful neuritic phase of the disease has passed. The authors treated 95 patients with poliomyelitis. The disease was very severe in 31 patients, severe in 24, moderate in 20, and mild in 20. A total of 51 injections into the aorta were given to 27; among these were 16 in whom all the extremities were involved. There were no side-effects. The results were considered optimal when there was 90 to 100% restoration of the muscle function, good with 70 to 90%, moderate with 50 to 70%, and poor with up to 25% restoration of the muscle function. The early results were optimal in 13 patients, 2 of whom had the very severe and two the severe form of the disease; good in 21 of whom 3 had the very severe and 10 the severe form; moderate in 30; and poor in 13. The condition remained unchanged in two patients in whom all the extremities were involved. Although a definitive statement is still premature, the results seem encouraging.

Semaine des Hôpitaux de Paris

29:3415-3480 (Nov. 2) 1953

- *Idiopathic Acute Thrombopenic Purpura. J. Bernard, M. Aussanaire, A. Nenna and M. Dugas.—p. 3415.
- Acute Thrombopenic Purpura with Bleeding Intrabuccal Bullae and Hematuria. J. Bernard and A. Nenna.—p. 3422.
- Contribution to Study of Adrenal Cortex in Malignant Hemopathy. J. Bernard, G. Deltour, E. Velez and R. Leconte des Floris.—p. 3426.
- New Treatments for Leukosis. J. Bernard and G. Deltour.—p. 3430.
- Initial Stage of Blood Coagulation. J. L. Beaumont, J. Caen and J. Bernard.—p. 3437.

Idiopathic Acute Thrombopenic Purpura.—The authors have seen 24 cases of acute thrombopenic purpura, among which 23 spontaneous remissions occurred. There was one death caused by cerebral hemorrhage. Duration of thrombopenia ranged

from five days to five months, but the average duration was about 30 days. The disease is not uncommon and occurs particularly in children and with equal frequency in both sexes. It is characterized by certain hemorrhages, purpura, frequently epistaxis, sometimes bleeding intrabuccal bullae, and hematuria, accompanied by a typical thrombopenia. The evolution of the disease is rapid, as is its disappearance which is usually definitive. The etiology and physiopathology of the syndrome are unknown. Attempts to isolate allergic factors or antiplatelet substances were unsuccessful in this series of cases. Differential diagnosis between chronic thrombopenic purpura of the hematogenous type and acute thrombopenic purpura is often difficult, but important, in view of the different therapies indicated. Blood transfusion is the principal treatment in acute purpura. Splenectomy, which is usually necessary in chronic purpura, is rarely indicated for the acute variety. When thrombopenic purpura has appeared only recently, intervention should, if possible, be delayed until after at least six months, and sometimes as long as a year, on the theory that the disease may be acute.

South African Medical Journal, Cape Town

27:921-944 (Oct. 17) 1953. Partial Index

Morris Splint for Mandibular Fractures. D. S. Davies, L. Barclay and T. C. Wilson.—p. 926.

*Pigmentation of Lips and Buccal Mucosa Associated with Intestinal Polyposis. J. Trengove Jones.—p. 930.

Successful Non-Surgical Treatment of Acute Osteomyelitis of Ulna: Case Report. J. B. Herman.—p. 933.

Case of Retained Urethral Catheter with Fistula of Urethra. B. W. F. Bishop.—p. 936.

Pigmentation of Lips and Buccal Mucosa Associated with Intestinal Polyposis.—Trengove Jones presents the histories of four patients in whom perioral and buccal pigmentation concurred with intestinal polyposis. The pigmentation conformed with Siemen's description of "ephelides inversae." The pigment occurred on the mucosa of the lips and around the mouth, areas that are usually immune even in freckled subjects. The pigmentation was punctate in distribution and varied from black to brown. The marks could not be obliterated by lip-stick. The skin lesions had been present as long as the patients could remember. In only one patient was it possible to establish beyond doubt that the lesions had been present at birth. The polyps in all these patients were pedunculated and occurred in the small bowel. They all presented as intussusceptions. In every case only one polyp was found. The histology was consistently that of a benign adenomatous polyp, and in only one case was pigment detected. In only one case was it possible to establish any relevant family history. Two of this patient's brothers had the typical pigmentation around the lips and mouth but by middle life had shown no symptoms or signs that could be attributed to polyposis. There is, however, presumptive evidence in a review of all recorded cases that the syndrome is familial and is transmitted as a dominant Mendelian characteristic. The association of this pigmentation with intestinal polyposis was first observed by Peutz in 1921 and is also known as the syndrome of Peutz.

Strasbourg Médical

4:483-551 (Oct.) 1953

Antituberculous Prophylaxis in Childhood in Departments and Communities. L. Béthoux.—p. 483.

Place of BCG Vaccination in Contemporary Fight Against Tuberculosis. P. Oudet.—p. 491.

Organization of Fight Against Infantile Tuberculosis in the Rhine Valley. Burghard.—p. 494.

*What Is to Be Thought of BCG Vaccination as Method of Antituberculous Prophylaxis? G. Burghard.—p. 497.

Remarks on Diagnosis and Treatment of Pulmonary Tuberculosis. E. Vaucher.—p. 503.

Present Orientation of Surgery for Pulmonary Tuberculosis in United States. E. Forster.—p. 511.

Some Indications and Contraindications in Surgical Treatment of Pulmonary Tuberculosis. P. Oudet.—p. 515.

Appraisal of BCG Vaccine.—The author considers three questions: the present importance of vaccination of any kind against tuberculosis (in view of the rapidly declining mortality rate), the disadvantages of BCG in particular, and the over-all results of immunization by BCG vaccine in the past. The point made

regarding the first question is that the decreasing mortality is a reflection only of modern therapy of tuberculosis and has not been accompanied by a corresponding decrease in morbidity. Immunization prior to onset of the disease is still of vital importance, especially considering the long, incapacitating, and expensive character of the treatment. BCG has proved effective for this immunization during the 30 years of its use. Its side-effects can be disturbing, especially in the newborn, but they are not serious or permanent. Care must be exercised so that vaccination is not done on those persons strongly exposed to the disease. The enormous amount of statistical material that exists, however, is overwhelmingly in favor of the efficacy of BCG vaccine; and the author sees no reason to discredit the old saying, "Prevention is better than cure."

Zentralbl. Arbeitsmed. u. Arbeitsschutz, Darmstadt

3:129-160 (Sept.) 1953. Partial Index

*Dangers in Exposure to β -Dimethylaminoethylchloride or β -Diethylaminoethylchloride. G. Klavis.—p. 133.

Influence of Vitamin B Complex on General Condition of Swing-Shift Workers. H. J. Urban.—p. 134.

Seed Disinfectants and Their Dangers. E. Tornom.—p. 137.

The Industrial Physician in France. L. Gramer.—p. 143.

*Fatal Poisoning from Use of Hydrochloric Acid in Confined Space. E. Thiele.—p. 146.

Determination of Porphyrin in Urine of Workers Exposed to Lead. H. Groetschel.—p. 146.

Dangers in Exposure to β -Dimethylaminoethylchloride or β -Diethylaminoethylchloride.—Klavis points out that β -dimethylaminoethylchloride as well as β -diethylaminoethylchloride are used in the synthesis of antihistaminics and various muscular relaxants. Although tissue changes had been known to be produced by direct contact with diethylaminoethylchloride, there was no record of detrimental effects having been produced by dimethylaminoethylchloride. When, however, 10 laboratory workers showed signs of irritation on the conjunctivas and the nasal mucous membranes, as well as visual disturbances, further investigations seemed necessary. An accident helped to clarify the causal connection. Protective goggles had been unknowingly allowed to come in contact with dimethylaminoethylchloride, and especially severe irritation and visual disturbances developed in the laboratory worker who wore these goggles. It was surprising that the catarrhal symptoms characteristic of diethylaminoethylchloride were less prominent when there was exposure to dimethylaminoethylchloride. The occasional catarrhs were slight and did not noticeably impair physical performance; however, there were complaints about photophobia, lacrimation, and, more rarely, about slight respiratory disturbances. Reduction in the accommodative capacity with pupillary involvement deserves special mention; its severity, like that of the clinical course, is dependent on the concentration and length of exposure to the harmful agent. Ophthalmologic examination of these laboratory workers disclosed in all excessive hyperopia that made all close work, particularly reading, very difficult. In one laboratory worker who had been exposed for a short time to a high concentration of dimethylaminoethylchloride, complete ophthalmoplegia interna (with maximal dilatation of pupils and complete paralysis of accommodation) and rotatory nystagmus developed. Work had to be interrupted for two weeks, and during this time normal accommodative capacity was restored.

Fatal Poisoning from Use of Hydrochloric Acid in a Confined Space.—A suction pipe (diameter 4 in. [10.16 cm.]; length 100 m.) between the well and the cooling system of a brewery was to be cleaned with a solution (30%) of hydrochloric acid. The pipe had been filled with 350 liters of the fluid, and after it had been in the pipe for about 30 minutes it was withdrawn in buckets at the well end of the pipe by a man who stood on a ladder about 3 m. below the top of the well. The man ascended the ladder behind the bucket, which was drawn up by a cable drum. He collapsed and fell in while sitting at the edge of the well trying to get fresh air. His co-workers brought him up immediately, and he regained consciousness. After a physician arrived about 2 hours later, he was at once taken to the hospital where he died shortly afterward. Necropsy revealed that death was due to massive pulmonary edema. There were indications that the acid solution had emitted vapors.

BOOK REVIEWS

Modern Trends in Urology. Edited by E. W. Riches, M.C., M.S., F.R.C.S., President, British Association of Urological Surgeons, London. With foreword by Lord Webb-Johnson, K.C.V.O., C.B.E., D.S.O. Cloth. \$12.50. Pp. 476, with 215 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd Street, New York 16, 1953.

This volume consists of 38 chapters written by distinguished specialists, each of whom is well qualified to discuss the subject to which he has been assigned. The book is not a stereotyped text but deals with most urologic entities emphasizing recent trends and advances in therapy. Appropriate medical and surgical treatment in urology depends on careful evaluation of the associated bacteriological and pathological conditions. Regular visits to the pathologist as a helpful aid in solving some of the difficult problems are suggested. The indiscriminate use of antibiotics without bacteriological identification of causative organisms is condemned, as this incurs the risk of producing resistant strains of bacteria. The reader is reminded that older and simpler remedies such as methenamine mandelate (Mandelamine) and the sulfonamides are still effective.

An especially valuable section is the complete, concise presentation of the problem of the obstructive prostate, both benign and malignant. All surgical procedures are clearly presented and neatly illustrated. The indications, shortcomings, and complications of each technique are clearly pointed out. The diagnosis and treatment of bladder and renal tumors conforms to the modern thinking with regard to these lesions and should be most helpful to graduate and undergraduate students. In the treatment of renal tumors, nephrectomy and radiation are favored. Chapter 4 deals with translumbar aortography, but the dangers of this procedure are barely mentioned. Case reports include pyelograms, aortograms, and photographs of pathological specimens that are well reproduced and correlated. The volume contains little information on scrotal lesions. The inclusion of a short treatise on testicular tumors and their management would help to round out the discussion of important urologic diseases. On the other hand, chapter 31 concerns the reconstruction of the male urethra in strictures with the Dennis-Browne technique, which is a major undertaking and perhaps rarely indicated.

The need to regard urology as a specialty is stressed. Special delicate and expensive equipment is particularly essential in carrying out the endoscopic procedures. "Experience and skill in general surgery are of fundamental importance to the would-be urologist and before exclusive specialization in urology is allowed a trainee should have reached the grade of a senior registrar in general surgery, and have had outpatient urological experience." The problem of undergraduate urologic hospital teaching is well treated, and factors modifying specialization, such as the necessity of surgeon-urologists in smaller hospitals, are included in the discussion. The fact that at present there is no endowed chair of urology in any university in Great Britain is lamented, but hopes are high for its realization in the near future. The volume is printed on good paper, and the type is pleasing. Urologists and general surgeons will find this book a help in the study and review of urologic diseases. The volume reflects the comprehensive knowledge and broad experience of the authors.

Méningite tuberculeuse et tuberculose miliaire de l'enfant: Leur traitement. Par Robert Debré, professeur à la Faculté de médecine de Paris, et H. E. Brissaud. Avec la collaboration de J. Raynaud, et al. Paper. 5000 francs. Pp. 632, with 237 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris, 6e, 1953.

This monograph contains an analysis and synthesis of the authors' experiences based on 644 patients entering their service between January, 1947, and October, 1952. In August, 1952, 286 (52%) were alive. The major consideration was to study

tuberculous meningitis in the infant and its treatment from the point of view of clinical forms, biological examination, and anatomic lesions. Much of the information is not new, but the changes due to treatment are new in transforming the course of the disease. The symptoms are rapidly modified by treatment; intracranial hypertension signs disperse, consciousness returns, temperature drops, and the course becomes favorable unless the causative organisms are resistant. The subacute form thus may become chronic. Diverse complications were noted. The subject is covered in detail with the aid of many illustrations. The etiology and the initial period of tuberculous meningitis, the principle forms of evolution, complications, clinical forms, cerebrospinal fluid, bacteriology, the use of electroencephalography, ophthalmic lesions, evolution of lesions, prognosis, differential diagnosis, treatment, and military tuberculous meningitis are discussed. The author concludes that (1) tuberculous meningitis results from a massive general familial exposure, frequently to streptomycin-resistant bacilli in which case it progresses rapidly; (2) bovine transmission is exceptional; (3) there is 1 case of meningitis to 300 primary infections; (4) the risk of meningeal complication is great in the presence of military involvement of the choroid; (5) exogenous reinfection plays no role in producing meningitis; (6) heredity likewise plays no role; (7) Kernig's sign and nuchal rigidity are frequently absent; (8) complications are numerous; (9) alterations in cerebrospinal fluid are frequently the only diagnostic signs; (10) the organization of special laboratories is essential to diagnosis; (11) circulatory disturbances and changes in the optic disk are important; (12) the mortality is 70% for infants of 1 year decreasing to 34% at 6 years; (13) the mortality increases from 35% to 89% if the tubercle bacilli are resistant; (14) antituberculosis drugs have greatly improved the prognosis for patients with military tuberculosis; and (15) military tuberculosis complicated by meningitis is severest. This accumulation of data on tuberculous meningitis, well presented in French, should be valuable to all conversant with French and interested in the treatment of tuberculosis in infants.

Facial Deformities and Plastic Surgery: A Psychosocial Study. By Frances Cooke MacGregor, M.A., et al. Publication number 174, American Lecture Series, monograph published jointly in Bannertown Division of American Lectures in Psychology and American Lectures in Psychiatry. Psychology series edited by Molly Harrower, Ph.D. Psychiatry series edited by Roy R. Grinker, M.D., Director, Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital, Chicago. Cloth. \$5.75. Pp. 230, with illustrations. Charles C. Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad Street, Oxford, England; Ryerson Press, 299 Queen Street, W., Toronto 2B, 1953.

This book is the product of a research project made possible by a grant from the National Institute of Mental Health, U. S. Public Health Service. It discusses in detail typical case histories and the psychosocial, psychological, and psychiatric aspects of these and other representative problems. The elementary details included will bore a thoroughly experienced plastic surgeon but will be attractive to social and educational workers primarily concerned with personal and family problems. The case histories remind one of involved reports of "do-gooders" whose primary enthusiasm exceeds their insight into the unimportance of irrelevant details. The treatise will, however, increase the readers' perspective into problems of deformity and disfigurement. Younger surgeons uncertain whether to enter the field of reconstructive surgery will be helped in their deliberations by this study; those who have recently entered the specialty will acquire insight that time and experience will confirm.

All who work in this field must be perpetually aware of the mental components of visible structural impairment. Only then can the reaction of patients to disfigurement and its surgical implications be appraised and prognosis wisely guarded. All of these problems, though involved, are real; some patients actually have mental troubles that far exceed the physical. Intimate

analysis requires more time than the surgeons can give and therefore belongs to workers whose primary interests are in the departments of sociology and psychology. The book is easy to read and is not designed to convey any technical or scientific treatment of the field of plastic and reconstructive surgery. Covering an essential ancillary field, however, it will serve a useful purpose in furthering the education of our fellow workers.

Physiological Cardiology. By Arthur Ruskin, M.D., F.A.C.P., Associate Professor of Internal Medicine, University of Texas—Medical Branch, Galveston, Texas. Publication number 184, American Lecture Series, monograph in Bannerstone Division of American Lectures in Physiology. Edited by Robert F. Pitts, M.D., Ph.D., Professor of Physiology and Biophysics, Cornell University Medical College, New York. Cloth. \$8. Pp. 370, with 9 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This volume tries to encompass the wide field of cardiac physiology and its clinical implications in a mere 318 pages. This results necessarily in a rather staccato style of presentation and the author cannot even attempt to go into detail or state the controversial viewpoints regarding many of the subjects mentioned. The brevity and condensed form of this book may, however, be of value to the student or the candidate for a specialty board examination. The typography of the book is excellent, and the bibliography gives the most important sources of general information in the field. The few illustrations are well selected.

Preparation for Medical Education in the Liberal Arts College: The Report of the Subcommittee on Preprofessional Education of the Survey of Medical Education. By Aura E. Severinghaus, Ph.D., Harry J. Carman, Ph.D., and William E. Cadbury, Jr., Ph.D. Cloth. \$4.50. Pp. 400. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, 1953.

More than a hundred liberal arts colleges were comprehensively studied over a two year period by the Subcommittee on Preprofessional Education in their efforts to determine the educational opportunities that these institutions offered to pre-medical students. Their report is well written and contains a wealth of carefully considered and important information concerning the preparation of college students for later professional training in medicine. Following a description of the organization, objectives, strategy, and technique of the survey, the report begins with an analysis of the premedical student. This is followed by an excellent presentation of the advisory system as currently found in our institutions of higher education and highlights the value of college advisory systems when they are worthy of such designation. Certainly one of the functions of our institutions of higher education should be to help young persons find and correctly orient themselves in regard to their future life work, and the role of good advisory systems in accomplishing this function is well presented. The need for effective liaison between the colleges and medical schools is clearly stated, and the reasons for the success or failure of satisfactory interchange of knowledge between them are indicated.

Throughout the volume, the value of a broad cultural background for future professional training is stressed and it is emphasized that: "It is more important that a student's life be made meaningful in medical school, and afterward, than that it should be made easy." Efforts are made to describe a balanced education and to state the relative merits of the several disciplines as a background preparation for medical education. Major courses and the importance of the culminating year before admission to medical school are then described, and this is followed by an account of several stimulating ventures in college education now being conducted in different parts of the country. The teacher and his methods and the challenges confronting teachers as well as the types of teaching failure and their probable causes and remedies constitutes a most valuable chapter of the report. Influences outside the classroom, personal and social responsibilities, and trends and outlook are dealt with in the closing chapters of the volume with the happy note that the "outlook is good because so many are in quest of the best."

About 150 pages of appendix material are included, much of which is highly significant to all educators and which should

be read in full. The entire volume represents a worthy analysis of the problems confronting educators in preparing students for professional study. It is a notable contribution that deserves careful reading on the part of all who are engaged in teaching and administration in liberal arts colleges as well as in professional schools regardless of their area of discipline. It is to be hoped that application of the principles set forth in this volume will help to make the student's life more meaningful.

Symphathikus Chirurgie. Von Prof. Dr. Paul Sunder-Plassmann, Direktor der chirurgischen Klinik und Poliklinik der Universität Münster (Westf.). Cloth. 54 marks. Pp. 162, with 146 illustrations. Georg Thieme, Diemers-haldenstrasse 47, (14a) Stuttgart O; [agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16], 1953.

This is a scholarly approach to the subject of sympathetic surgery. Although thoroughly conversant with the existing literature, Professor Sunder-Plassmann has gathered the bulk of the material for this monograph from his personal experiences. This makes the book particularly valuable. The author calls attention to the fact that it is the general practitioner who sees the sympathetic syndrome first and that he has forced the specialists in this field to attempt to provide some specific forms of therapy and to establish the indications for their use. The discussions that emanate from various clinics regarding the value of stellate blocks, sympathetic resections, ganglionectomies, and similar procedures are not answered in a definitive manner. In fact the author states that, in most of these cases, such an answer cannot yet be presented. He emphasizes, however, that such "violent discussions" are well worth while as a stimulus to coordinating and correlating the available material.

In this day, with the trend toward statistical analysis, it is refreshing to find an intelligently written text that plays down statistics. The author reports on 510 sympathetic surgical procedures, only 7 of which were stellate ganglion resections. It is to his credit that in his series only two patients died. Rather than listing various indications and contraindications he discusses the conscientious indications for the various procedures. The lack of statistical data in the book is not due to the loss of Professor Sunder-Plassmann's personal figures in a bombing in the last war but due to his belief that statistics, numbers, and technique play the least important roles in the approach to this subject. His *sine qua non* for a procedure is based on knowledge of anatomy, physiology, and pathology, to be sure, but these subjects do not supersede the importance of judgment. Although he attaches little importance to surgical exhibitionism, he does not belittle surgical dexterity. He has brought to the fore the significance of psychosomatic medicine, which, he believes, should fall into the realm of the average general surgeon. The text has been properly embellished by good illustrations, fine microphotography, and ample case presentations. The close coordination between artist and author is readily discernible as one reviews this work. Although no specific answers can be drawn from this monograph, it will prove stimulating as well as helpful to those interested in the subject. A rather thorough reading knowledge of German would be required to appreciate fully the text.

Handbook of Acoustic Noise Control. Volume II: Noise and Man. By Walter A. Rosenblith, Kenneth N. Stevens, and staff of Bolt, Beranek, and Newman. WADC technical report 52-204. Aero Medical Laboratory contract no. AF 33(038)-20572, RDO no. 695-63. Paper. Pp. 262, with illustrations. Wright Air Development Center, Air Research and Development Command, United States Air Force, Wright-Patterson Air Force Base, Ohio, 1953.

This handbook was written for the benefit of all those who have the responsibility of "doing something about noise." This includes the doctor, the industrial hygienist, the safety engineer, the architect, the administrator, the economist, the legislator, and many others. The problems cut across all administrative boundaries, professional groupings, and academic disciplines. The handbook is addressed to just such a general audience, centering on the planners and the engineers, and it summarizes in effective form and language, with the aid of well-selected charts, graphs, and tables, the present state of knowledge of the biological and psychological effects of noise on man. There have been important additions both to techniques and to knowl-

edge in these areas in the last few years, and nowhere else is there as good a compilation of this information or as good a selected bibliography. The doctor who is interested in industrial medicine and even the specialist in otology will profit from the chapter entitled "Basic Bio and Psychoacoustic Data," with its excellent subsections on audiometry and speech communication. It will be interesting to those who know these subjects well from the clinical point of view to read this exposition of the psychoacoustic principles of audiometry addressed to readers with an engineering or administrative background. Here the medical man will learn something of the points of view of both the engineer and the experimental psychologist.

The perspective in relation to such problems as human response criteria for noise control and the effects of noise on human behavior is excellent. Many paragraphs are devoted to pointing out clearly and emphatically the complexities of both of these problems, the difficulties of obtaining numerical data, and the necessity for reaching common understandings on certain original definitions and assumptions before any firm rules can be laid down. Nevertheless, in spite of all the uncertainties, the authors give their best conjectures as to certain tentative criteria. For the problem of interference by noise with communication by speech, assumptions and even rules can be made with fair confidence. The criteria for prevention of hearing loss, however, must have been drawn up with fear and trembling. The limitations of these criteria are many and they are clearly stated. The doctor or anyone else interested in problems of loud noise would do well to obtain a copy of the report for this section alone. This report was prepared by the Air Force for use by supporting industry. It is available to all through the Office of Technical Services, Department of Commerce, Washington 25, D. C., and should find wide distribution.

Resuscitation of the Newborn. By Joseph D. Russ, M.D., F.A.A.P., Assistant Professor of Pediatrics, Tulane University School of Medicine, New Orleans. Publication number 193, American Lecture Series, monograph in American Lectures in Anesthesiology. Edited by John Adriani, M.D., Director, Department of Anesthesia, Charity Hospital, New Orleans. Cloth, \$2.50. Pp. 55, with 7 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St. W., Toronto 2B, 1953.

Because mortality in infants on the first day of life is still much higher than at any other period in infancy, it is important for all physicians to be aware of the causes for asphyxia and proper methods to employ for resuscitation of the newborn infant. As used in this book, the term asphyxia refers to failure of respiration. The importance of establishing respiration within 30 seconds after severance of the cord is pointed out because of the irreversible damage to the cerebral cortex that may occur due to insufficient oxygenation of the blood. The clinical factors contributing to asphyxia, methods of resuscitation, and after-effects of asphyxia are described. Treatment consists chiefly of supplying immediate warmth with a minimum of handling; clear, open airways; and oxygenation of the blood. The importance of the tracheal catheter is stressed. The application of the principles presented in this book should aid in reducing the unnecessarily high mortality rates of the first days of life.

Einführung in die Augenheilkunde. Von Prof. Dr. med. J. A. Jaensch, Obermedizinalrat und Chefarzt der städtischen Augenklinik zu Essen. Second edition. Cloth. 22 marks. Pp. 244, with 197 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; Agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

The pattern of this abbreviated textbook of ophthalmology, intended for the use of German medical students and general practitioners, follows that of American books by May-Perera, Gifford-Adler, Town, Goar, and Hughes. There is a logical, systematic, and concise but sufficiently comprehensive exposition of the ophthalmologic disorders most frequently encountered. Surgery is referred to but briefly. Many of the better illustrations are reproduced from Thiel's atlas. This volume should fill an important place in medical education in German-speaking countries but, because of language difficulties and the abundance of similar books in English, there will be little demand for it in the United States.

Design and Construction of General Hospitals. By U. S. Department of Health, Education and Welfare, Public Health Service. Cloth. \$12. Pp. 214, with illustrations. F. W. Dodge Corp., 119 West 40th Street, New York 18; in collaboration with Modern Hospital Publishing Co., 919 N. Michigan Ave., Chicago 11, 1953.

Although the perfect hospital never has been constructed and probably never will be, the use of this volume as a reference and guide will prevent many of the errors that show up after completion. It is refreshing to note that the authors admit that "each hospital is a problem unto itself." The section on construction and design starts with a consideration of how to select the site and progresses through every department and all facilities and factors that influence construction. The traffic flow charts and area allotments for each department in the hospital, included in this section, are valuable aids. The section entitled "Schematic Plans of General Hospitals" includes units from an 8-bed community clinic with a nursing division to a 200-bed hospital for an urban district, this being in line with the "Coordinated Hospital System," a plan generally accepted as providing the public with the most economical health service. Useful charts on equipment costs and floor plans and equipment and supply lists for hospitals containing from 50 to 200 beds are included. The book is chiefly for those whose responsibility it is to build new hospitals, but it can well serve as a guide and reference in remodeling and enlarging existing facilities. Students of hospital administration will find much of value in this reference book.

Wonders of Modern Medicine. By Steven M. Spencer. Foreword by George F. Lull, M.D., Secretary and General Manager, American Medical Association. Cloth. \$4. Pp. 276. McGraw-Hill Book Company, Inc., 330 W. 42nd Street, New York 36; 95 Farringdon Street, London, E.C.4, 1953.

The author of this book, formerly a president of the National Association of Science Writers and a student of physiology and other medical subjects at Harvard University under a Niemann Fellowship in journalism, has written a convincing, informative, and exciting account of the advances made in medicine during the past decade or so. Today the best science writers specializing in medical subjects are conscientious reporters who do a great deal of painstaking research before translating medical information into readable form. As a group these writers are aware of their responsibility to lay readers, and they guard against premature and overoptimistic announcements that tend to arouse false hopes among both the general public and physicians. The book deals with such timely medical topics as surgery of the heart, arteriosclerosis, cancer, radioactive isotopes, antibiotics, gamma globulin, glaucoma, arthritis, diabetes, and epilepsy. To learn the successes, disappointments, and struggles that have characterized medical science in recent years, the general reader would do well to read this fascinating book in its entirety.

Design for Decision. By Irwin D. J. Bross. Cloth. \$4.25. Pp. 276, with illustrations. The Macmillan Company, 60 Fifth Avenue, New York 11, 1953.

This book discusses the theory of probability and statistics in an informal manner, with much incidental philosophizing, a liberal use of the first and second personal pronouns, and the irreducible minimum of numbers and symbols. Unfortunately, the symbols cannot always be those familiar to the student who has had only high school algebra, and the style cannot appeal to every reader. However, the content of the book is important because it includes some ideas that have been undergoing rapid development in recent years, especially the idea of sequential analysis. This is the body of principles underlying the probability of successive events and specifying the conclusions justified by samples drawn in succession from the same lot of material. While this is of particular interest in industrial quality control, it must also have its applications in medicine. For instance, the metropolitan citizen's daily rides to work may be regarded as a sequential sampling of the bacterial flora of the subway system. There should be further elaboration of the medical aspects of this problem, a clearer statement of Bayes' rule, and some warning when words like "order" (page 77) are to be used in a special sense. With attention to some of these points a future revision of this commendable work may have greater appeal for the medical reader.

QUERIES AND MINOR NOTES

THE COMMON COLD

TO THE EDITOR:—I will appreciate information concerning the efficacy of corticotropin (ACTH) and cortisone, with or without other adrenal hormones, in the abortion of incipient common colds. If it can be used with advantage, please indicate the dosages and adjuvant medications such as antihistaminics. What are the newest developments in prophylaxis and treatment of the common cold?

M.D., New York.

This inquiry was referred to three consultants, whose respective replies follow.—ED.

ANSWER.—Although a number of vaccines have been developed for prevention of the common cold, none has received general acceptance. Infected tonsils or facial sinuses may play some part in those who are subject to frequent colds. Allergic conditions may also deserve attention. There is no established method for prophylaxis. The "orthodox" treatment of the common cold is much the same now as in the past. Nevertheless a sulfonamide or more likely an antibiotic is likely to be prescribed and in some instances may be of value. It is a good plan to obtain a culture from the nose and throat to determine if organisms other than a virus are present.

ANSWER.—No drug or combination of drugs acts specifically in the prophylaxis or treatment of the common cold. Many nostrums and remedies have been advocated for either or both of these purposes, such as alkalis, vitamins, laxatives, antihistaminic drugs, and many others; none of them can be shown to be effective in controlled studies. The physician can often obtain symptomatic relief for his patients by prescribing aspirin, codeine, atropine, papaverine, or combinations of these drugs.

ANSWER.—No clinical report is available that recommends the use of corticotropin (ACTH) or cortisone for the treatment of the so-called common cold. On the basis of available studies with these compounds in the management of most other bacterial and viral infections, the use of corticotropin or cortisone is contraindicated in the treatment of incipient common cold. Their administration may interfere with normal immunologic processes of the body and thus may result in depression of the usual salutary antibody production.

TENOSYNOVITIS OF FINGER

TO THE EDITOR:—A man, aged 30, suffers from tenosynovitis of the right middle finger, with crepitus and slight ganglion formation at the metacarpophalangeal joint. He also has peptic ulcer. His general physical condition is good. Would he be benefited by cortisone by mouth? Would hydrocortisone (Hydrocortone) by injection into the hand be of any help? What is the best treatment for this condition?

Harry Hallarman, M.D., New York.

ANSWER.—From the description it appears that this patient has a mild chronic tenosynovitis. The hormones by mouth or local injection probably would be of no value, and might be dangerous in the presence of a known peptic ulcer. The best treatment is difficult to assess because it is not known whether this is a specific tuberculous infection or a chronic nonspecific manifestation. At times complete immobilization of the hand in the position of function will improve this condition, but eventually in most cases surgical excision of the involved tendon sheath is done.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

BLOOD UREA AFTER NEPHRECTOMY

TO THE EDITOR:—For two years I have taken care of a patient, 60 years of age, who had a nephrectomy 30 years ago for tuberculosis. The left kidney is radiologically normal, the diet is quite moderate, and the blood urea averages, over two years, 55 to 60 mg. per 100 cc. by xanthidrol method. The latest value was 65 mg. by the hypobromite method. Is it known that the blood level of urea may be physiologically higher with one kidney than with both?

M.D., Paris, France.

ANSWER.—The inquirer is referred to an article by Ellis and Weiss (*Am. J. M. Sc.* 186:242, 1933) for blood urea and urea clearance findings in persons who have had nephrectomy and to a report by Addis and co-workers (*Arch. Int. Med.* 34:243, 1924) for the same determination in rabbits that have had unilateral nephrectomy. It has been established that unilateral nephrectomy does not result in an abnormal increase in the blood urea, provided the remaining kidney is normal. Occasionally one may encounter a rise in the blood urea immediately after nephrectomy, if the circumstances of dehydration and excessive protein catabolism are present. An abnormally high blood urea level persisting after nephrectomy indicates that the remaining renal tissue is damaged and cannot maintain homeostasis. Normal blood urea levels are 25 to 30 mg. per 100 cc. by the xanthidrol reaction by Goldbaum. The fact that the patient mentioned has a blood urea level of 55 to 60 mg. per 100 cc. implies that his remaining kidney is in a deteriorated state despite normal urograms. A normal pyelogram does not necessarily rule out renal disease. Not infrequently one observes normal pyelograms in patients with glomerulotubular nephritis or arteriosclerotic nephropathy. To determine the functional status of a kidney, it is necessary to employ one or more of the quantitative tests. The methods employed most frequently in the clinical practice of medicine are the urea clearance, creatinine clearance, and phenol-sulfonphthalein excretion tests. After unilateral nephrectomy and if the remaining kidney is normal, the urea clearance will be eventually about 70 to 80% of normal.

PRURITUS ANI

TO THE EDITOR:—A man, aged 68, had suffered for five months from pruritus ani. Local treatment by a proctologist did not bring relief. The history gave one clue: A fat poor diet had been continued for years with an excessive intake of brewers' yeast (about 10 teaspoonfuls daily of the powder). Supposing the yeast had a deleterious effect on the intestinal flora, similar to that of chlortetracycline (Aureomycin), I advised discontinuing use of yeast and to substitute once weekly injections of vitamin B₁₂ intramuscularly in doses of 30 mcg.

M.D., New Jersey.

ANSWER.—It is assumed that in the course of this patient's laboratory studies, intestinal infestation, particularly with regard to *Enterobius vermicularis*, was excluded. No reports were found of studies indicating a deviation from normal of the intestinal flora as a result of ingestion of brewer's yeast. It is well established that thiamine frequently increases intestinal motility. Pruritus may result from unattenuated pancreatic enzymes reaching the perianal mucosa. This is a common occurrence following any diarrhea of long standing. Has the physician investigated the possibility of achlorhydria as a cause of increased motility of the intestinal tract? This may result in subsequent pruritus ani. Elixir of Rubratorn (containing vitamin B₁₂, folic acid, and ferric ammonium citrate), 2 drams (8 cc.) four times daily, should be given the patient to relieve his pruritus. There should be a more detailed dietary history, followed by an attempt at normalizing the patient's dietary intake, supplemented if necessary, by a multivitamin preparation orally.

TETANY

TO THE EDITOR:—A woman, aged 62, has been suffering with tetany for 10 months that is apparently due to nonfunctioning parathyroid glands. Nothing does any good except calcium gluconate, 10 to 20 cc. intravenously daily, which she has received for 10 months. The veins are about destroyed and are very hard to enter. Can you suggest anything she could take by mouth or intramuscularly?

Merle A. Place, M.D., Hornell, N. Y.

ANSWER.—The therapy of tetany depends on its etiology. If it is due to hypocalcemia in association with hypoparathyroidism, pseudohypoparathyroidism, or renal insufficiency, it will respond to the following preparations, all given orally: vitamin D₂ in doses of 50,000 to 400,000 units a day, or dihydrotachysterol in doses of 1 to 3 cc. daily, along with 10 cc. of aluminum hydroxide with each meal and calcium gluconate, 1 to 2 teaspoonsful (4 to 8 cc.) three times daily. In addition, in renal insufficiency the acidosis should be controlled by the administration of base, such as sodium citrate. In hypoparathyroidism the problem of the use of calciferol or dihydrotachysterol is not so much prevention of tetany as ascertaining the dose required to maintain the serum calcium at or just below a normal level, rather than at an abnormally high level. This regulation is best managed with the aid of the Sulkowitch test for urinary calcium. It is generally advisable to utilize a diet high in calcium and low in phosphates, at least at the initiation of therapy. Parathyroid extracts yield diminishing effects with time, owing to antibody formation.

If the tetany is due to hypocalcemia associated with steatorrhea, dihydrotachysterol may not be effective since it is prepared in an oily vehicle and thus may not be absorbed. In addition, the formation of calcium soaps within the intestinal tract may markedly limit the availability of calcium for absorption. These factors may well explain the problem of control of tetany in the patient described above.

Nevertheless, the combination of vitamin D₂ and calcium gluconate or chloride in the manner indicated above is effective in the control of hypocalcemic tetany due to steatorrhea. There are available preparations of vitamin D₂ for intramuscular use, but they are very rarely necessary. It is worthy of note that "latent steatorrhea" has been described in which hypocalcemic tetany due to vitamin D lack may occur without gross changes in the stool (Cameron, D. G.; Bensley, E. H., and Wood, P.: *Ann. Int. Med.* 37:553 [Sept.] 1952). The possibility that the tetany may not be hypocalcemic but due to the hyperventilation syndrome or the ingestion of excessive alkali should be ruled out. It should not be necessary to administer calcium intravenously for an extended time.

FIRST AID EQUIPMENT

TO THE EDITOR:—I have been asked to make a list of supplies that should be kept in a first aid room for treating injuries due to falls on the ice in playing hockey or figure skating. I have done very little accident work for many years and wonder just what is considered the proper equipment to have on hand in order to get the patient to the hospital in good condition.

M.D., Montana.

ANSWER.—Assuming that a physician will be available to use the equipment, the following list is believed to include the most essential items: 1. For combatting shock: blankets, hot water bottles, aromatic spirits of ammonia, and meperidine (Demerol) or morphine. 2. For immobilizing injured part: tongue blades, basswood splints, wire ladder splints, hinged Thomas arm and leg splints with foot brace and support attachments, roller bandages (both muslin and gauze), safety pins, adhesive tape, arm slings, felt padding, and sand bags. 3. For control of hemorrhage: tourniquets, sterile 4 by 4 in. gauze dressings, and pressure bandages. 4. For associated wounds: 70% alcohol, tincture of thimerosal, safety razor, soap, suture materials, absorbent cotton, bandage scissors, and knives. 5. Miscellaneous items: folding litter, wheel chair, and crutches. In your particular situation there may be items not listed here that you will want to include, but this list covers the main essential items.

CHEST PAIN FOLLOWING INTRAVENOUS INJECTIONS

TO THE EDITOR:—Sometimes intravenous injection of, for example, iron, calcium, or vitamin C preparations cause angina-like pain for a few moments even in young patients with clinically normal hearts and even if the injections are given slowly. Is this a symptom of coronary sclerosis?

Naguib Habib, M.D., Giza, Egypt.

ANSWER.—Chest pain following an intravenous injection may occur as a consequence of generalized vasodilatation induced by the drug injected, resulting in a fall in systemic blood pressure and a state of transient coronary insufficiency. True angina occurs in this manner only in patients with abnormal coronary circulation in whom the ability to adjust readily to changes in pressure and flow is impaired. A second mechanism, and one that accounts for most reactions to intravenous injections, is the occurrence of vasovagal reactions due to irritation of medium-sized blood vessels along the course of the venipuncture. Such stimulation is followed by diaphoresis, cold sensations, dizziness or syncope, and a transient sense of vague substernal discomfort or mild oppression. Such chest pain rarely has the character of angina. Reactions of this kind may attend either venipuncture or arterial puncture and are not indicative of coronary disease. Calcium and iron preparations are intense local irritants and, it is for this reason, rather than because of contamination of such solutions, that vasovagal reactions are seen. In the sensitive patient, prior sedation as well as slow injection is helpful. Saccharated iron is notorious for causing reactions, and it should be emphasized that there are very few legitimate indications for giving iron intravenously.

COLOR BLINDNESS IN PROSPECTIVE STUDENTS

TO THE EDITOR:—Is it fair to refuse college students admission to schools of engineering, medicine, science, or agriculture because they are partially color blind?

Yung-chen Shih, M.D., Formosa, China.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Partial color blindness does not seriously hinder the attainment of scientific achievement and high degrees of success in the activities mentioned. To refuse the admission to these fields of partially color blind students would be an injustice. Students with high degrees of color blindness may find themselves handicapped in some particular projects, but the fields of activity are wide and offer attractive prospects for visually handicapped students who are otherwise well qualified.

ANSWER.—A student should not be denied the opportunity to study medicine merely on the basis of partial color blindness. Although in certain fields of medicine a color-blind physician would be somewhat handicapped, the extent to which such persons are able to compensate is remarkable. One of the better medical schools in the United States a few years ago had four major department heads who were partially color blind.

SLIDE FLOCCULATION TESTS IN OFFICE PRACTICE

TO THE EDITOR:—Please publish a list of slide flocculation tests for syphilis and list their relative accuracy for office practice.

Paul J. Herley, M.D., Coatesville, Pa.

ANSWER.—There are no dependable slide flocculation tests for syphilis available for office practice. All tests for syphilis, including slide tests, are unique in the fact that the performance of each of the multiplicity of steps requires expert hands and an error in any one step is sufficient to lead to incorrect results. The dependability of syphilis tests is proportional to the expertness in serologic techniques of the technical worker who performs them.

TREATMENT OF EXPOSED ACHILLES TENDON

TO THE EDITOR:—Following an injury to the lower end of the lateral aspect of the right leg, an ulcer developed that laid bare about 2 in. of the fibula and about $3\frac{1}{2}$ in. of the Achilles tendon. Surrounding the exposed bone and tendon are healthy granulations that at both ends and on one side show no tendency to cover over the Achilles tendon. What treatment is advised to cover the exposed bone and tendon? What are definite signs of tendon death? Should this Achilles tendon be cut away at this time, seven weeks after injury? The peroneal tendons have already been sacrificed. What type of skin graft is best utilized to cover the defect? M.D., New York.

ANSWER.—An attempt should be made first to make sure the wound is thoroughly clean of any necrotic tissue. This can best be done by use of enzymes, such as streptodornase and streptokinase (Varidase), or cleaning the wound with hot, moist, normal saline packs. As to the death of a tendon, this is clinically difficult to determine. Some tendons, while appearing "dead," do have recuperative powers if given proper protection. The tendon should not be sacrificed at this time, but the defect should be covered with a thin, split-thickness skin graft. This will probably grow to the tendon and, in some cases, will even grow to the exposed bone. If the wound can thus be made into a closed wound, a secondary procedure can be done in shifting a skin flap, together with some fat with the flap, over the tendon. The fibula may later be resected; a 2 in. (5 cm.) resection of the fibula is of no consequence as far as function is concerned.

ADDITIONAL VARICOSITIES FOLLOWING TRAUMA

TO THE EDITOR:—A woman 50 years of age was in an automobile accident this summer. It resulted in pain and swelling of her right ankle and left knee and pain in the coccyx area without roentgenographic evidence of fracture at any of these points. Mild edema of the ankle and knee was present for several weeks. She has moderately severe varicose veins that she maintains are worse since the accident than they were before. Is it possible for trauma to an extremity to cause an aggravation of a previously existing varicose vein? G. L. Wiltse, M.D., Wahpeton, N. D.

ANSWER.—In order to prove a connection between the automobile accident and the presence of ankle edema with increase in the size or number of varicosities, the following points must be considered: 1. There was no ankle edema or less ankle edema before the injury than after it. 2. There was a type of collateral venous circulation characteristic of deep venous occlusion that now has definitely enlarged. 3. At present, there is evidence of deep venous insufficiency with superficial collateral network of veins. The occurrence of injury to a collateral venous bed, with increase of edema and appearance of additional varicosities, must be admitted since traumatic thrombosis is more apt to occur in a previously damaged venous network.

NEW METHOD OF CANNING CORN

TO THE EDITOR:—A large canning company announced that it was going to use a new method of canning corn that involved pressure cooking for only 7 instead of 30 minutes. Is a period of only seven minutes sufficient to kill botulinus spores? M.D., New York.

ANSWER.—The new method of canning corn to which the inquirer refers makes use of rotary-type equipment for holding the cans as they are being processed. By rotating the cans during the processing, a more rapid heat penetration is possible so that the holding time can be reduced. The usual processing for canned corn is 244 F for 30 minutes. With the rotary-type equipment, the processing is carried out at 270 F for seven minutes. It has been established by numerous studies that this high-temperature-short-time processing produces a better product and is at the same time adequate to insure the destruction of *Clostridium botulinum*.

EPIGASTRIC PAIN FOLLOWING INJECTION OF VITAMIN B COMPLEX

TO THE EDITOR:—While giving a malnourished patient a vitamin B preparation intravenously, he complained of severe, cramping epigastric pain of 2 minutes' duration. He gave a history of peptic ulcer a few years ago. I have had at least two patients with active ulcer complain of identical pain under the same circumstances. Is it usual for these patients to have irritation or spasm of the ulcer area from some component of the B complex? If so, could this reaction be of any value in following the progress of the peptic ulcer patient? M.D., Kentucky.

ANSWER.—There is no scientific evidence that suggests that the intravenous administration of any component of the vitamin B complex produces spasm of the stomach or duodenum in the region of an active peptic ulcer. The intravenous administration of a wide variety of chemical substances occasionally produces abdominal pain, with hypermotility or spasm of the colon and other parts of the gastrointestinal tract. In the present case, it would be necessary to demonstrate that the cramping epigastric pain following the intravenous administration of vitamin B is associated with spasm of the pyloric portion of the stomach and not of the colon. It is not likely that the reaction could be of value in following the progress of the peptic ulcer patient.

SODIUM FLUORIDE TABLETS AND DENTAL DECAY

TO THE EDITOR:—What is the present opinion of the value of sodium fluoride tablets for the prophylaxis of dental caries? K. W. Covey, M.D., Mahanomen, Minn.

ANSWER.—Theoretically dental benefits may be obtained from individual dietary supplements of soluble fluorides. There is, however, no adequate published study to verify this assumption, which is based largely on the observed results of water fluoridation. The obvious difficulties of individual administration relate to the following factors: 1. An optimum amount of fluoride must be administered daily throughout at least the first eight years of life to attain the dental benefits. There is also some evidence that continued use of fluoride beyond this period may be desirable. 2. The fluoride supplements must be adapted to the individual water supply or used only in areas where the drinking water is essentially free of fluoride. 3. Because of the potential hazards involved in the improper use of fluorides, such supplements should be limited to prescription in those cases that will be adequately supervised. The fluoridation of public drinking water is obviously the method of choice, but fluoride supplementation may prove useful in areas where a fluoridated municipal water supply is not available.

CARBON MONOXIDE POISONING

TO THE EDITOR:—I would like information on retrobulbar neuritis caused by carbon monoxide and optic atrophy caused by carbon monoxide.

Robert G. Laird, M.D., Grand Rapids, Mich.

ANSWER.—In the course of severe carbon monoxide poisoning as reflected by deep unconsciousness, almost any portion of the body may undergo damage. If persistent, such occurrences are to be regarded as sequelae and not as chronic poisoning. In all instances the damage is to be attributed to anoxia at the time of the acute episode. Brain tissue is particularly vulnerable. Fairly often involvement of the eyes will lead variously to transitory visual impairment or to total blindness or instead to ocular paralysis. Nearly always the lesions are located in the nuclei of the different ocular nerves rather than in any distal apparatus. On occasion the same condition has been described as optic atrophy or as retrobulbar neuritis without sharp discrimination. All this has been described by Drinker in "Carbon Monoxide Asphyxia" (London, Oxford University Press, 1938). That monograph contains bibliographic items referable to eye injury. Victims of carbon monoxide poisoning are prone to neuroses, and hysterical blindness or near blindness is well known.

ELIMINATION OF ALCOHOL FROM THE BODY

TO THE EDITOR:—Through what channel is alcohol excreted from the system of an inebriated person? How long does it take to excrete the alcohol from such a person? If a person's blood alcohol concentration was 0.15% four hours after his last drink, how much would it have been at the time of his last drink?

R. M. Sandeen, M.D., Buffalo, Minn.

ANSWER.—More than 90% of the alcohol is oxidized by the liver. The remainder is eliminated unchanged in the breath, urine, and perspiration. The rate of loss is remarkably uniform, a 150 lb. (68 kg.) person losing from 6 to 10 cc. of absolute alcohol per hour. The "catch" in the last question is that the last drink may also have been the first. Under such conditions there would have been no alcohol in the blood at the time of drinking, since it takes time for the alcohol to be absorbed into the blood. This phase of absorption, characterized by a rising blood alcohol, may last as long as two hours when a large amount of alcohol has been taken at one time. Then the oxidation factor supersedes and the blood alcohol level falls at a uniform rate of about 0.015% per hour. It is then simple to determine that the level four hours before a 0.15% reading could have been between 0 and 0.21%, depending on the phase of absorption or oxidation.

FAT IN THE DIET

TO THE EDITOR:—Is fat essential for the diet of a normal adult? If so, how much? What are the consequences of following an extremely low fat diet for many years?

M.D., Kentucky.

ANSWER.—It is probable that some fat in the diet is essential for the normal adult for the following reasons: (1) to supply certain essential unsaturated fatty acids; (2) to supply adequate calories to the total food intake; and (3) to supply satiety value to the total diet. However, it takes a relatively small amount of fat (about 25 gm. a day) to satisfy these requirements. Typical American diets are high in fat, containing from 125 to 175 gm. of fat per day. A "low fat" hospital diet will contain about 50 gm. of fat per day. There would be no adverse effects of following such a diet for many years.

EPINEPHRINE AND CARDIOVASCULAR DISEASE

TO THE EDITOR:—The answer about epinephrine and cardiovascular disease in the Dec. 19, 1953 JOURNAL, page 1496, requires modification. Epinephrine (Adrenalin) not aminophylline is the drug of first choice, but one must understand how to use it in relieving the asthmatic attack when associated with hypertension or cardiac disease. Too often the initial dose of epinephrine is too large, which accounts for the tachycardia. A dose of 4 minims should be injected subcutaneously. If within 20 to 30 minutes insufficient relief from the asthmatic attack is obtained, an additional 2 to 4 minims are administered until relief occurs, the total amount used being the optimum dose for any further attacks. Epinephrine is preeminent in the relief of the bronchial asthmatic attack with or without hypertension or cardiac disease, when used as advised. Aminophylline is the drug of choice only when the patient is epinephrine-fast or is sensitive to epinephrine. It is also a fine adjunct to epinephrine.

David L. Engelsher, M.D.

178 E. Mt. Eden Ave., New York 57.

AMOUNT OF ALCOHOL THAT CAN BE TOLERATED

TO THE EDITOR:—The reply in the Dec. 12, 1953, JOURNAL page 1414, on the amount of alcohol that can be tolerated I believe is rather on the conservative side. While in military service in the Philippines I observed a supply officer who consumed, by actual count, more than 40 cans of beer daily for several weeks—he bought it by the carton—during about 16 to 18 waking hours. During this time he was able to perform the duties required of him, and, while most of the beer was consumed after duty hours, I don't recall that he was ever out of contact with his surroundings.

Lester Lando, M.D., Monsey, N. Y.

OTOSCLEROSIS

TO THE EDITOR:—In THE JOURNAL Jan. 2, page 101, in *Queries and Minor Notes*, it was disappointing to see the brief handling of the subject on deafness under the heading "Otosclerosis." There was no accurate and detailed history given, no results of physical examination including nose, nasopharynx, and throat, and no functional examination of the hearing with tuning forks and audiometry. Conductive or nerve type hearing loss was not diagnosed; this should be done first.

Second, the commonest cause of bilateral progressive hearing loss with marked tinnitus is perceptive-type deafness and not otosclerosis. If it is otosclerosis, it is not true that any known therapy is useless. Many of these persons may have a satisfactory level of hearing restored by the fenestration operation. This operation, long past its experimental stage, is being done in numerous cities throughout the country. THE JOURNAL should print a correct answer so that some deaf persons will not be told that "nothing can be done except to get a hearing aid, learn lip reading," or worse to be relieved of tonsils and teeth.

L. Reed Cranmer, M.D.

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TO THE EDITOR:—THE JOURNAL, Jan. 2, contains a rather inaccurate reply in *Queries and Minor Notes* purporting to answer a question on otosclerosis. The fenestration operation is no longer experimental and should have been recommended to this inquiring physician for his patient with otosclerosis. In fact, all otolaryngologists would be deeply affronted by this slight to the achievements of their specialty in this disease.

E. M. Herzon, M.D.

164 Division St.

Elgin, Ill.

TO THE EDITOR:—I would like to comment on the answer to the query on otosclerosis in THE JOURNAL, Jan. 2, 1954, page 101. The answer advises a young woman, aged 36, to wear a hearing aid. The fenestration operation, which has been so successfully developed in this country by Dr. Julius Lempert, should have been suggested. I have seen excellent results in patients on whom he operated more than 10 years ago, and four months ago he operated on a woman 60 years of age. In addition to progressive deafness she had other classic signs such as tinnitus and noises. She now has serviceable hearing, and the tinnitus and noises are gone for the first time in 30 years. This woman had tried a hearing aid. After wearing it a few weeks she became highly nervous. Her comment was: "I'd rather remain deaf than to have to wear it the rest of my life."

Joseph W. Miller, M.D.

1953 S.W. 16th Ave.

Miami 45, Fla.

The first of these letters received was submitted to the consultant who answered the original inquiry. His comment follows.

TO THE EDITOR:—In reference to the letter of Jan. 11 on otosclerosis, it may be said that a nerve type of deafness may be progressive in elderly persons (presbycusis); however, in a woman of 36, a nerve type of deafness is more likely to be stationary. With a presumed history of normal hearing, the deafness would be acquired in most instances from some injury or infection involving the eighth nerve. In this event the hearing loss would be stationary as a rule and would frequently be unilateral rather than bilateral. Otosclerosis is much commoner in my opinion, in women aged 36 than a bilateral progressive nerve type of deafness. Marked tinnitus is associated with otosclerosis rather than with a nerve deafness as a rule. The fenestration operation is most useful when indicated and is established as a sound surgical procedure. However it is not classed as therapy, as it does not affect in any way the progress of otosclerosis.

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OPPORTUNITY FOR RESEARCH IN GENERAL PRACTICE

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The subject of this paper suggests that for a moment we have pause from the busy furor of our daily lives, back off a little, and think on where we are and whither we are going. Since this meeting is aimed consciously at the man in general practice, let us for a moment consider the horse-and-buggy doctor of 1953. His horses are not those literal beasts of burden and transport of his grandfather's time but rather engines of 100 horsepower, and the buggy, like as not, is a Cadillac. In his black bag are not just some tongue blades, a stethoscope, and a few specific and nonspecific remedies used with infinite effect but literally dozens of highly potent drugs—antibiotics, hormones, sedatives, vitamins—which he sometimes dispenses with bewildering liberality and abandon. Whereas his grandfather was the friend, adviser, and general sage of the families in his care, today the physician may be almost a stranger to the patient whose only contact with him is in the office or hospital. Certainly, having many more patients, he has less time to know each one well. A radical reversal in the public's attitude toward the physician has occurred so subtly that only when we hear otherwise sensible persons talk about socialized medicine as a panacea do we suddenly realize the long passages of time, space, and thought that physicians have crossed to get to their present pinnacle and present plight. For the commodity of health, the layman now feels, is a fifth freedom to which all are entitled as a birthright. How is the physician today prepared to serve those whose demands are exigent of all the miracles of the more flashy and superficial optimism of those popular elements of the lay press whose life blood is sensation and whose death sentence is the unadorned fact? In parallel with the growth of the great scientific aspects of medicine has been a decline of the medical arts that used to form the whole corpus of practice and that our grandfathers used with such happy effect. It is as though the mind and the attention of today's medical student and doctor could not absorb equally medical science and medical arts, the "Siamese twins" whose separation has always brought disaster when one or the other had to be sacrificed or left a runt. But the free practice of medicine must always be a practical art plus an applied science if it is to fulfill its best purpose. This brings us face to face with my theme, the

opportunity for research in general practice. A quotation from Sir James Mackenzie sets the stage: "Consider for a moment who is the individual in medicine who has the opportunity of seeing all parts of medical science in its true perspective. It is the general practitioner. He sees the conditions that predispose to disease; he sees its inception and the course it pursues, passing from the signs for medical treatment to the time when it calls for surgical interference. He sees the after-effects of the operation after the surgeon has claimed it as a success. If he is stimulated to inquire into the symptoms of disease, he is brought in contact with every special department, and has the opportunity for estimating them at their true value."

CHANGES IN LEADERSHIP

Two forces, I believe, have been responsible for the fact that leadership in clinical medicine, clinical research, or simply understanding the natural history of disease as it expresses itself in sick persons has passed from the hands of the yeomanry of medicine, the practicing doctors, into the ivory tower of our medical colleges, hospitals, and research institutes. First I put an uneasiness born of the belief that research is necessarily a matter of abstruse formulas, complex apparatus, and high voltage, which the novice had better leave alone. Thus the battle may be lost because the practicing physician enters the plea of *nolo contendere*, to use the lawyers' term. Far too many simply give up without a try. The other powerful influence, and it affects academic medicine, too, is nothing less than the deadening of natural curiosity, the suppression of wonder, and the security-minded acceptance of authority that characterize the attitudes of too many physicians who have come out of their medical school training with the rigid stamp of the stereotype ineradicably impressed upon them. The substance of my comments will be some review of the past and suggestions for the present.

HISTORIC ROLE OF THE GENERAL PRACTITIONER

The most striking phenomenon of our contemporary age of science is this languishing of those aspects of health and disease called natural history. They first came

into flower with the Renaissance. With the arousal from the long swoon of the human intellect known as the Dark Ages, the sterile authority of the ancients was exposed to the clear light of nature under the close and critical scrutiny of the inquiring mind. Jean Fernel, whose medical career epitomized the Renaissance, was a pioneer in advancing the medicine of his day by two bold steps. He escaped from the shackles of astrology, then recently given some dignity by the resurgence of mathematics but not yet become astronomy. He showed the false prognosis of horoscopes by following up predictions with facts. Next he eliminated magic from medicine, permitting observation to take its natural place. Thus he paved the way for Sydenham, to whom we owe the birth of modern clinical medicine, for Sydenham let the evolution of disease and epidemics write its own natural history. So, for a while, advances in medicine came mostly from the general physician who observed the whole life span of his patients, often literally from childbirth to death. He observed life, and what he saw was not to be found in the nosologies, systems, encyclopedias, or textbooks of the day.

By a curious distortion of ideas, research today has come to be thought of as an affair exclusively of the laboratory. The more complex the apparatus and equipment, the higher credit is given to the scientist. The doctor in practice is shy before such fame. The history of medical research in this country has many interesting facets. Up to relatively late in the 19th century, research as such hardly existed, although even then there were striking examples of physicians in general practice making elegant investigations. Beaumont's basic work in physiology clarified many abstruse problems of digestion. He took advantage of a rare opportunity that occurred in general practice. Drake's geomedical studies provided another example of the remarkable achievements in clinical observation, for Drake undertook nothing less than to describe and define the connection between geography and disease in the great interior valley of North America. Oliver Wendell Holmes, on the basis of his shrewd observations and deductions, was able to throw a clear gleam of light on the clinical havoc of puerperal sepsis long before the experimental science of bacteriology gave a detailed explanation for his observations.

One striking American characteristic has been the desire for immediate utility in the medical sciences. For this reason technology has ruled supreme. Pure science in this country only recently has come to stand on its own feet. The 19th century was fairly sterile in American contributions to basic science, but one can hardly blame the physicians of that era for contributing so little. They were products of the time in which they lived. In a capitalistic society their livelihood depended upon competitive solo practice; success in practice was the main requisite to high academic positions on medical faculties. The unfortunate thing about this was that the busy practitioner took little time for investigations. Comte has observed that such a situation was as bad for medical science as it would have been in astronomy had this field of endeavor been left up to the observations

of sea captains. Here the mariners provided the corrective of stubborn facts to keep theory compatible with practice.

ATTITUDES TOWARD PATIENTS AND DISEASE

Before this theme carries me away, I propose to digress for a moment on the nature of causes and the meaning of diseases. It might serve some modestly helpful purpose to consider some historic attitudes of physicians toward patients and diseases. In a broad and oversimplified way man has been thought of as an animal, a machine, or as a person with a soul. Disease has been a visitation of evil spirits, an error or flaw in an engine, or a complex biological reaction in time between a person and his environment, internal and external. This last considers etiology of disease in terms of person, mechanism, and surroundings seen as the momentarily stopped frame in a moving picture of infinitely various complexity. Now it is at once apparent that several viewers will see the same scene differently and the scene out of context with what has gone before may make little sense or may give false notions. We are confused or frustrated by coming into a movie at some unknown middle part. Disease as a biological reaction ceases to be an abstraction and becomes a concrete expression of forces, a person, and reactions. No one of the elements is absolutely comprehensible for us in terms of our best logic or symbols, so we judge the correctness of our impressions in terms of predictive value. Does our crude map tell us how to get there? Considering the great laxity of the human intellect when confronted with the need for reasoning and rationality and the fact that the data of science and observation are not the natural food of the mind, some of our maps are surprisingly accurate.

My particular plea is that the general practitioner as the family physician has a supreme opportunity and duty to observe his patients in this light and add to the corpus of knowledge, supplementing the microcosmic research of the laboratory and complementing the broad macrocosmic concepts of the philosopher of public health, in short, a normocosmic view of man.

CURRENT OPPORTUNITIES FOR RESEARCH

You may say uneasily that the laboratory researchers will come around to solving our problems for us, and to a degree this is true. But one of the subtle changes that has occurred whenever clinical research has achieved individuality as "clinical science" is that it has worked on its own problems with its own techniques. A salient feature of a specialized point of view is the natural preoccupation with its own problems. I need cite but one example. James Lind discovered all the essential features of scurvy—the circumstances of its occurrence, prevention, and cure—but it was 160 years before physiology and biochemistry came round to identifying and making vitamin C; and much of this delay was not because of want of skill but of lack of interest. The researches of our present-day leaders so often follow the template of the technique or the apparatus that much of what passes for investigation is the mechanical echo of a method. We find journals full of reports about electrolytes, iso-

topes, electrical potentials, intravascular pressures, and body compartments. Each modest pile of facts has some intrinsic worth. The trouble is that the machines of research often grind on from a long-forgotten *vis a tergo*. Thus the results may become the routine accumulations of pedestrianism not illuminated by ideas. Indeed, when some new idea does come along, the mad scramble to get into print produces a woeful rip tide of minor variations in the same eddies over the same shoals and reefs.

But, although it is heresy to say so, this is not my notion of real research or investigation. What are some of the important practical questions that, like so many wallflowers, are patiently waiting for our attention? What are the real causes for patients coming to us in trouble? Perhaps the simplicity of the complaints is unfashionable, but we owe them at least the courtesy of attentive thought. In the practice of medicine and, parenthetically, internal medicine is but a high-sounding name for the substance of general practice, many patients complain of troubles that have not yet had much attention from the laboratory. What light does science throw on that much-complained-of malaise or, more simply, the feeling of illness? What does it mean, how is it produced, what makes it fade into a neutral feeling and then vanish before the resurgence of the positive feeling of brisk and buoyant health? The answers await the natural historian of disease who attends sharply, observes faithfully, and thinks on the facts of observation in unrelenting meditation. It takes no atom smasher, no high-pressure mathematics, no ultracentrifuge to come to grips with the problem, but it does take time and it does take thought.

Pain, though it has recently received intense study, still contains in its universal variables much for the earnest thought of physicians in practice. Anorexia, nausea and vomiting, hunger, appetite, and satiety: these may be complaints volunteered insistently or unrecognized drives that lead the patient to peril or disaster. How little we know of their comings and goings! The steps from obesity to anorexia nervosa are few, but they are largely unmeasured. Fatness has, with reason, become a major preoccupation of our people, but the contradictory fads used to combat it bespeak our confusion or indifference. Surely those in touch with patients in many aspects of their lives are in a better position to investigate these problems in terms of significance and, perhaps indeed, of mechanism than are the laboratory people. Tiredness that comes without benefit of effort and fatigue that comes without work are pervasive symptoms that need the most careful probing and study. We need details of long and patient scrutiny to avoid the devil of seeing organic disease everywhere and the deep blue sea of ascribing every such complaint to emotional strain and stress. The physician who knows and has long known his patients, their families, fears, fights, failures, and festivals can illuminate such problems with insights hardly possible when the patient is abstracted from all his native surrounding and put in the context of the improbable or unreal world of a hospital bed or a department of clinical science. But work and care and time and thought are needed. There is no king's highway, no royal road.

NEED FOR DEFINITION AND CLARIFICATION

How much more we should know of sleep and rest and of insomnia, which some use as opportunity for reflection and others as excuse for impossibly exaggerated fishermen's tales of never sleeping. Even with all the studies by physiologists, psychologists, psychiatrists, and even psychoanalysts, the significant facts are meager and their interpretations myriad. But the place to get more facts is in the busy life of medical practice, by observations on patient, on family, and on self that may bring light to this dark and nocturnal study. And let us not leave constipation off our list. What is it? What are its significance and its mechanisms? What is the essence of its malfunction? Is there any good reason to subscribe to the fetid symbolism of the less self-critical devotees of the psychoanalytic school whose weird conceits and scatologic mythology bid fair to make them the scavengers and sewer men of the human spirit? Or should we instead rank costiveness as the number one enemy of the people and battle it by flooding this laxative-loving nation with still more cathartics? Even in this lowly problem the opportunities for research are handsome. The price is the same: observation, concentration, and meditation.

I have no doubt that the thoughtful man in practice could do something to clarify our tangled notions of what a vast deal of unrelated troubles hide behind that contradiction in terms, "intestinal flu," which may mean cancer, colitis, colic, or cramp. Another catch-all for the diagnostically destitute is "virus pneumonia"—the masquerade of abscess, tuberculosis, tumor, bronchitis, or bronchiectasis—treated too often with some handy antibiotic chosen by the eenie-meenie-minie-moe of the latest or most artfully lavish of that eager band of peripatetic scholars, the detail men. But when we "make the diagnosis," we have real patients suffering with real trouble and what we need is more painstaking study, care, and caution.

LACK OF BROAD PERSPECTIVES IN PATIENT CARE

Every thoughtful physician feels humility before the five modern plagues that have baffled all our wise men and defied the great committees of modern research that have launched project after project against one or another aspect of cancer, arteriosclerosis, hypertension, rheumatism, and the common cold. In the skeptical minds of a few of us, the feeling is gaining weight that research by caucus and committee will not yield the necessary clues. Broad, glowing light is not likely to come from the peep-show specialists who see the patient through the gun-barrel vision of their particular scope. Some of us feel that the answers in research, if they come at all, will come from ideas supplied by thoughtful physicians who employ their time in concentrated observation of the sick, which provides the driving force of imagination and sometimes, all unknown, permits a flash of insight. At a time when industry has found that pride in craft and contribution toward accomplishment is a stronger morale builder than wages or hours, we

should see to it that the lesson is not lost on those who by design or by fate practice medicine in swarms. There is real danger that our patient may disappear as an entity, John Smith, and become in fact that dry abstraction, the Common Man, whose conception is presided over by a conceptician, his birth attended by an obstetrician, his early days spent in the hands of a pediatrician, his burst into adult life in the hands of an adolescentist, and who during life is buffeted about among all the "-icians" and "-ists." At length he begins to become unstrung under the careful guidance of a climacterician. Finally the shriveling atrophy of old age is lubricated by the attention of a geriatrician until, bedeviled, bewildered, bemused, he falls exhausted off the end of the conveyor belt into the hands of the mortician. And all along the vast lock-step procession, teams and relays of specialists take turns at their posts on the day shift, the swing shift, and the graveyard shift, each to adjust one bolt, solder one wire, turn one screw, or take away bits of the wreckage; and the Common Man as he bounces along uneasily on his medical pilgrimage over the conveyor-belt road has no guide or companion unless he finds a personal physician.

INSIGHT THROUGH OBSERVATION

Whether from taste, talent, or training, my own investigations have all been done with the smallest amount of equipment and machines and have had their origin in questions I asked myself or those asked of me, for which I could get no answer from teacher or text. Some of the problems I list: the relation of syncope to sudden death¹; organic disease as a cause of secondary malnutrition²; the growth of fingernails³; vascular spiders, palmar erythema, cherry angioma, venous stars, and caviar lesions⁴; and precordial noises and rupture of the aortic valve.⁵ None of the investigations required expensive apparatus. They were done at the bedside or in the office. All could have been done in general practice. In these fields of observation and research I made no revolutionary discovery, but there has been some tidying up, some clarification and synthesis aiming at general principles. This merely underscores the fact that we need many workers to get any of those rare flashes of insight that light up our dark probings and advance medicine.

These miscellaneous comments around the theme of research in general practice defy concise summary. They are predicated on the profound conviction that nature, instead of being explored exhaustively, holds back great expanses of unknown terrain. Even in what seems well-

mapped land, many things need to be cleared up, and sometimes our most cherished maps are obsolete. We need new ones. In this great garden of nature we need many workers, for the human intellect, though a sharp and wonderful tool, has never been an easy one to use. Systems and doctrine hold back progress, partly because they can never hope to encompass the whole of nature. Much current medical training by its rigid conformity to artificial systems helps overload the mind with detail. Our childhood wonder is finally strangled by what passes for education, and we live as strangers in a strange world. Not the least of our professional blunders is the failure to cultivate in all practicing physicians the capacity to observe, to meditate, and to synthesize. I get very tired of being told that a research program will start when the machine arrives and then of watching the perplexity as to what to study with it when it comes. In no sense are these remarks antiscientific, and I bow my head in awe and humility before the magnificent structure of modern science. None of us would give up the great advances attained by concentration in narrow fields.

THE FIFTH ESTATE

Fortunately the several aspects of medicine are not mutually exclusive. But the practical arts of medicine are too much jostled by experimental science from above and applied science from below. For its right development this trinity must have reasonable equality of the three constituent parts. Experimental science alone may be the sharp edge of an overhoned blade that curls back on itself unless supported by the practical arts. Applied science rapidly becomes dogma unless corrected constantly by the stubborn facts of clinical trial and observation. And the practical arts of medicine degenerate into quackery unless supported by experimental and applied science. To illustrate, each new scientific instrument introduced into medicine has left its wake bestrewn with faulty diagnoses before clinical experience plus scientific research put it into proper perspective. The stethoscope and electrocardiograph are ready examples.

To the lords spiritual, the lords temporal, and the commons, Edmund Burke added the Fourth Estate, the lay press: I conclude by urging that we all undertake to join in and share the rigors and torment but also the glories of what Arthur D. Little called the "Fifth Estate . . . composed of those having the simplicity to wonder, the ability to question, the power to generalize, the capacity to apply. It is, in short, the company of thinkers, workers, expounders, and practitioners upon which the world is absolutely dependent for the preservation and advancement of that organized knowledge which we call Science. . . . The world needs most a new tolerance, a new understanding, an appreciation of the knowledge now at hand. For these it can look nowhere with such confidence as to the members of the Fifth Estate. Let us, therefore, recognize the obligation we are under. Ours is the duty and the privilege of bringing home to every man the wonders, the significance, and the underlying harmony of the world in which we live."

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SURGERY OF THE ELDERLY

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The relative and absolute increase in the number of elderly persons in this country is a statistical fact that the medical profession must face. The elderly, as a group, are less able to pay for private medical care, and therefore they comprise an enlarging proportion of the clinical material available for ward teaching. The situation is not entirely without advantages on a surgical service. The lowered physiological reserve of the aged, the high incidence of concomitant disease, and the too commonly advanced nature of their surgical lesions constitute a challenge and demand the best the surgeon and his team can give. Much can be learned from close attention to the surgical care of the aged, and principles of broad significance must be reckoned with. Such points form the basis for an expanding literature dealing with the surgery of the elderly.¹

During a recent one year period at the Meyer Memorial Hospital there were 290 major operations on a consecutive series of 204 general surgical patients over the age of 70 (table 1). The average age of the 204 patients was 76.8 years, and the oldest patient was 94. The operations included laparotomy, thoracic surgical procedures, hip nailing, amputations, herniorrhaphy, thyroidectomy, sympathectomy, radical neck dissection, radical mastectomy, and other major procedures. Diagnostic endoscopy was not included in the tabulation. The over-all mortality rate was 13%, and the rate of postoperative complications was 35%.

Study of these cases brought out the point that these elderly patients were commonly being referred for surgical care for only the most compelling reasons. Advanced disease was the rule rather than the exception. Gastrointestinal cancer with complications, calculous biliary obstruction, incarcerated or strangulated hernia, intestinal obstruction, and gangrene of the lower extremities comprised a large proportion of the lesions. In the 95 laparotomies, cancer of the gastrointestinal tract was present 42 times, and in eight patients the lesions were far advanced and inoperable.

Considering the age of these patients and the severity of their disease, one must conclude that the surgical operations were well tolerated. It has been noted by others that laparotomy is a severe test for the elderly.² In the present series of 95 laparotomies there were 18 deaths, or 19%, and convalescence was unmarred by complications in 63%. Of the 95 laparotomies 42 were done for cancer, with 14 deaths, giving a mortality rate of 33%, though in 8 of these patients the growth could not be removed. In the 53 laparotomies done for lesions other than cancer there were four deaths (7.5%). Similarly, there were 22 operations on the biliary tract, with three deaths, but two of the deaths were in patients with unremovable cancer of the gallbladder and bile ducts. After the 18 operations for calculous disease of the gallbladder and bile ducts, there was only one death.

The 41 operations for hip nailing were followed by eight deaths. Four of these occurred more than one month after operation, death being due to pneumonia and inanition. The herniorrhaphies are also of interest in this connection. In the 32 operations, with no deaths, 2 involved laparotomy for repair of sliding hernia; and in four instances emergency repair was required. In two patients gangrenous bowel was excised.

MAJOR ABDOMINAL SURGERY

In a separate study designed to evaluate the risk of major abdominal surgery in patients over the age of 70 who have lesions other than cancer, further evidence of the surgical hardihood of the elderly was obtained. As shown in table 2, during a six year period there were 43 gastric resections for complicated peptic ulcer in patients over 70 years of age. The average age was 74.4 years; the oldest patient was 88. There were four deaths, three of which occurred after gastric resection for the arrest of acute massive hemorrhage in patients whose total red cell mass had been reduced to 60% or less in hemorrhage of life-endangering severity. In two of the four deaths the cause was myocardial infarction, which occurred on 2 and 29 days, respectively, after operation. One patient died of severe encephalomalacia, probably initiated by the hemorrhagic shock for which he was operated on. The fourth patient died of purulent bronchitis eight days after gastric resection.

An emergency gastric resection for acute massive hemorrhage from duodenal ulcer was performed on an 88-year-old man. He received 3 liters of blood during the operation, and his recovery was rapid and complete. His systolic and diastolic blood pressure dropped from 130/65 to 75/30 in the first hour of ether anesthesia, with subsequent stabilization at slightly above the original level. The free transfusion of blood as well as the cautious use of vasoconstricting drugs was in order to control such hypotension.

POSTOPERATIVE COMPLICATIONS

In analyzing the postoperative complications in the series of 290 operations on 204 patients over the age of 70, as shown in table 3, the commonest complications observed were those affecting the respiratory system, the

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2. Brooks, B.: Surgery in Patients of Advanced Age, *Ann. Surg.* 105: 481, 1937.

surgical wound, and the cardiovascular system. After 190 operations, no complications were noted. The high incidence of respiratory complications points up the need for using antibiotic drugs properly, maintenance of good oxygenation during anesthesia, avoidance of postoperative immobility, use of narcotics only sparingly, free use of pharyngeal and tracheal suction to remove postoperative secretions from the airway, and minimal use of nasogastric indwelling tubes. Fluid therapy, and particu-

TABLE 1.—Morbidity and Mortality

Operation	Number of Operations	Number of Patients	Without Complications	Deaths
Laparotomy.....	95	72	60 (63%)	18 (19%)
Hip nailing.....	41	37	19 (46%)	8 (19%)
Amputation.....	50	38	25 (50%)	7 (14%)
Herniorrhaphy.....	32	25	27 (75%)	0
Others.....	68	32	59 (87%)	6 (9%)
Total.....	290	204	190 (65%)	39 (13%)

TABLE 2.—Consecutive Series of Gastric Resections for Peptic Ulcer Complications

Indications for Gastric Resection	Number	Deaths
Acute massive bleeding.....	21	3 (14%)
Pyloric obstruction.....	12	1
Penetration, etc.....	10	0
Total.....	43	4 (9%)

TABLE 3.—Postoperative Complications

Complications	Number
Pulmonary.....	32
Cardiac.....	16
Wound.....	36
Thrombophlebitic.....	3
Cerebrovascular.....	5
Urinary.....	5
Miscellaneous.....	11

larly the administration of sodium chloride solutions, must be carefully controlled, and this frequently requires laboratory measurements.

There was a fairly high incidence of wound complications, such as infection, dehiscence, and hematoma, but it must be remembered that a high proportion of these patients had cancer, impaired peripheral blood flow, and malnutrition. In many instances laparotomy incisions in the elderly heal rapidly and firmly, and one gets the impression that wound complications are the result of factors other than age itself. In this connection, the importance of restoring and maintaining normal hemoglobin values in the elderly should be stressed. In the absence of acute blood loss, the transfusions should be given slowly, but the amounts of blood should be adequate. When it is feasible, hemoglobin and plasma protein values should be brought to normal before operation, and in this connection blood volume determinations can provide precise guides.³ Specific nutritional defects are common in the elderly and must be considered in surgical care.⁴ In bedside examination there is often evidence of lack of such factors as the water-soluble vitamins.

The occurrence of cerebrovascular accidents after operation in the elderly is of special interest, and there were five such instances in this series (table 3). It is of the utmost importance, as pointed out above, to avoid fluctuations in blood pressure and blood flow in these patients. Atheromatous plaques in the arteries of the brain, heart, or kidneys may be the site of formation of fatal thrombi during periods of stagnant flow. Hazardous intravascular clotting may also occur in the arteries and veins of the lower extremities or of the gastrointestinal tract. The anesthetist must keep this consideration foremost, and adequate oxygenation, together with minimal essential muscular relaxation, must be achieved without gross disturbance in hemodynamics. It is not always possible to prevent shifts in blood pressure during major abdominal surgery. The patient indicated in figure 1 was a 94-year-old woman with gastric cancer extending into the gastrocolic ligament. The resection was done entirely with the patient under local anesthesia, and the blood pressure and pulse reactions during radical gastric resection are shown in the chart. She was given 750 cc. of blood during the procedure. The hypotension occurring at the end of the first hour of anesthesia may have been due to splanchnic block or mesenteric traction. Fortunately, no untoward results followed, and the patient appeared to be in good health six months later. In studying the anesthesia reactions of this group of patients during the 290 operations, 40 patients were noted to have hypotension (systolic blood pressure below 90 mm. Hg) at one time or another. In 3 of these 40 patients cerebrovascular complications developed after operation. On the other hand, after the 250 operations performed without hypotension during anesthesia, cerebrovascular accidents occurred only twice. A pancreatoduodenectomy for carcinoma of the head of the pancreas was performed on a 72-year-old man. He lost about 200 cc. of blood and was given one liter by transfusion. His pulse and blood pressure remained fairly even throughout the long and complicated operation.

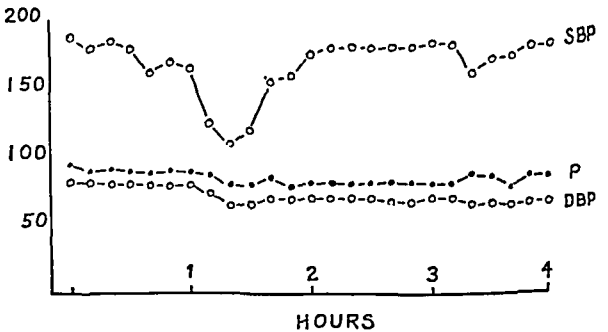


Fig. 1.—Blood pressure and pulse reactions during gastric resection for carcinoma in a 94-year-old woman.

If the operation and the immediate postoperative course can be conducted without anoxia and with little disturbance in blood flow, severe coronary artery disease or previous myocardial decompensation do not contraindicate necessary surgery. Figure 2 shows the blood pressure and pulse reactions of an illustrative case during operation. A 71-year-old physician had suffered two attacks of myocardial infarction, four and two years previously. He was left with angina and had experienced

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4. Elman, R.: Surgical Care: A Practical Physiologic Guide, New York, Appleton-Century-Crofts, Inc., 1951.

mild decompensation. A large sliding inguinal hernia could not be supported by a truss and made the patient's life miserable. Repair was successfully carried out, and no blood was given the patient, because his nutrition was good and blood loss at operation was minimal. He left the hospital eight days later and returned to his practice. At follow-up examination six months later there was no recurrence of the hernia.

MAJOR THORACIC SURGERY

The question is often raised as to the tolerance of the elderly patient for major thoracic surgery. There is mounting experience suggesting that such procedures

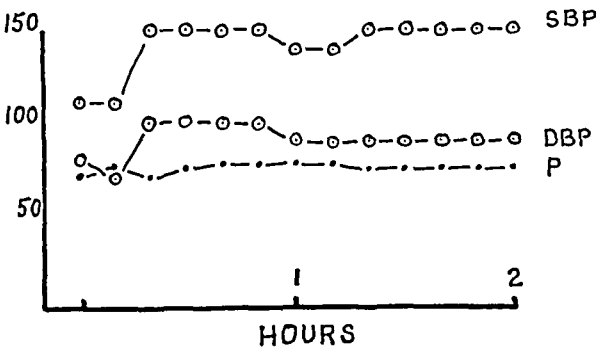


Fig. 2.—Blood pressure and pulse reactions during repair of sliding hernia in 71-year-old man.

are borne as well as extensive abdominal surgery. A 75-year-old man came into the hospital because of cough, weakness, loss of 40 lb. (18.1 kg.) in weight, and chest pain of eight months' duration. A right pneumonectomy was performed for squamous cell bronchogenic carcinoma, involving the regional lymph nodes. One liter of blood was given during operation. When the patient was seen five and one-half years later, he had had no recurrence of carcinoma and was in reasonably good health.

A 71-year-old woman complaining of attacks of weakness and convulsions over a period of six months was admitted to the hospital. Mental deterioration had been noted. A diagnostic study led to the diagnosis of hyperinsulinism and probable islet-cell tumor of the pancreas. By means of the combined thoracoabdominal approach an islet-cell adenoma of the body of the pancreas was found, and resection of the pancreas and splenectomy were performed. One liter of blood was given during the operation. Two years later the patient's health had remained good.

COMMENT

An analysis of the chief complications in the fatal cases of the present series is shown in table 4. It was concluded that in 21 of the 39 deaths the fatal outcome probably had little relation to the surgical operation, though this is, of course, speculative. Seventeen of the 39 patients who died had advanced cancer, and if these deaths were excluded the mortality rate was approximately 8%. Respiratory and cardiovascular complications were most commonly noted in the fatal cases.

It has been pointed out that the daily routine of the elderly patient should be upset as little as possible in relation to surgical treatment, and the patient should be returned to his normal environment as soon as practicable.⁵

In considering the problems of preoperative and postoperative care of the elderly, one is impressed with the point that they differ only in degree as compared with surgical care of younger patients. The margin of safety is less, and sharper attention to details is requisite. Expert nursing care is a potent factor in the recovery of the elderly patient, particularly if he be apathetic, querulous, disoriented, or negligent. Several students of the subject have recently pointed out the need for precise and accurate study of the physiological changes of senescence.⁶ It can be hoped that further scientific progress in gerontology will provide the clinician with better guides in evaluating the physical fitness of the elderly patient and his capacity to handle unusual stress. The statistical approach to the problem is hardly satisfying when the clinician has to make a decision in the case at hand.

At the risk of oversimplifying the subject, the following rules are suggested as desirable procedure in the surgical care of the elderly: (1) maintenance of normal values for hemoglobin and plasma protein, (2) free use of antibiotics, (3) proper vitamin therapy, and (4) postoperative pharyngeal and tracheal suction to keep the airway clear. The following factors are considered to be undesirable: (1) immobilization and inactivity, (2) stage operations that prolong morbidity, (3) anoxia and deep anesthesia, (4) fluctuations in blood pressure and blood flow, (5) overhydration, and (6) extremes of temperature or position. In addition, nasogastric suction by indwelling tube should be used minimally and narcotics should be given only sparingly.

TABLE 4.—Chief Causes of Death After 290 Major Operations*

Cause	Number
Pulmonary	6
Bronchopneumonia	4
Aspiration pneumonia	1
Massive atelectasis	1
Cardiac	3
Myocardial infarction	2
Cardiac arrhythmia	1
Cerebrovascular	4
Cardiorespiratory	3
Miscellaneous	2
Peritonitis	1
Acute small bowel obstruction	1
Death probably unrelated to operation	21
Terminal neoplasm	17
Thrombosis of abdominal aorta	1
Acute pancreatitis	1
Perforated peptic ulcer, postoperative	1
Bleeding esophageal varices	1

* Consecutive series of 204 general surgical patients over age 70. There were 39 deaths and 17 autopsies.

SUMMARY AND CONCLUSIONS

An analysis is presented of 290 operations on 204 consecutive patients over the age of 70 admitted to a general surgical service and subjected to major surgical procedures. No postoperative complications were noted after

5. Morton, J. J.: Surgical Care of Patients in the Extremes of Life, *Am. J. Surg.* 30: 92, 1935.
6. Lansing, A. I.: Some Physiological Aspects of Ageing, *Physiol. Rev.* 31: 274, 1951. Carlson, A. J.: Physiologic Changes of Normal Aging, in *Geriatric Medicine: The Care of the Aging and the Aged*, Steigltz, E.-J., editor, ed. 2, Philadelphia, W. B. Saunders Company, 1949, p. 47.

190 operations, or 65%. The commonest complications that occurred in the remaining 35% involved the respiratory system, the cardiovascular system, and the surgical wound. There were 39 deaths, or 13%, 17 of which occurred in patients with terminal cancer. If the latter are excluded, the mortality rate was 8%. Twelve of the deaths occurred in patients who had senile psychoses in addition to their surgical lesions. Advanced disease was the rule rather than the exception in causing these patients to be referred for surgical care.

It may be concluded that (1) major surgical operations can be carried out in the elderly with reasonably low risks; (2) the lowered physiological reserve of the elderly requires close attention to details of surgical care and technique; (3) serious concomitant disease does not necessarily contraindicate needed surgery; and (4) adequate surgical care should be made available to the elderly not merely to save life but also to relieve discomfort and disability.

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ANTIBIOTICS IN MANAGEMENT OF AMEBIASIS

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and

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The comprehensive management of amebiasis includes supportive therapy, prophylactic measures, and the proper administration of applicable amebicides. This treatise does not include methodical discussion of the factors involved in general patient care. Severity of the diarrheal stage or of the complications may necessitate bed confinement and hospitalization. Dietotherapy during the acute stages may be restricted to frequent small feedings of bland liquids. The therapeutic response and less austere aspects of the disease permit progression through bland diets to a relatively normal low residue nutritious regimen. Chronic mild and asymptomatic phases dictate only nutritional requirements. Abstinence from use of certain substances has been advocated, including alcohol,¹ defatted hog gastric tissue (ventriculin),² and certain food substances.³

The clinician's contribution to the prophylaxis of amebiasis is restricted to the direction and treatment of persons with parasites. An aggressive attitude inestimably aids the public health officer, whose problem is prevention of contamination of food and water supply. The meticulous study of the direct contacts of each patient is the physician's responsibility. Eradication of *Endameba histolytica* from all persons with the parasites, both those with and without symptoms, is imperative as a public health measure.

The initial amebicide, ipecac, has been discarded. Emetine,⁴ the first efficient and widely used amebicide that was initially considered "specific," has, despite its proved *in vitro* efficiency, fallen into relative disuse. Therapeutic limitation⁵ and toxicity⁶ dictated its early decline. The only existent indications for its administra-

tion are as a supplement in the control of unusually severe amebic dysentery and for extracolonic amebiasis. Various emetine combinations with bismuth and iodine have not been endorsed in this country.

The iodine compounds chiniofon⁷ (yatren, anayodin), Vioform (5-chloro-iodo-8-hydroxyquinoline),⁸ and Diodoquin (5,7-diiodo-8-hydroxyquinoline)⁹ are still in common use. Of these, Diodoquin is least toxic and is accredited with good results.

Various arsenicals have proved efficiency. Carbarsone,¹⁰ acetarsone (Stovarsol),¹⁰ Treparsol (a formyl derivative of 3-amino-4-hydroxyphenylarsonic acid),¹¹ thiocarbarsone (4-carbamido-phenyl bis[carboxymethylthio] arsenite),¹² and arsthinol (Balarsen)¹³ have been advocated. Arsenical toxicity, a potentiality of each, reserves them in most instances for cases which other therapy has been unsuccessful. The combination of arsenic and bismuth as bismuth glycolylarsanilate (Milibis)¹⁴ is endorsed as an efficient relatively nontoxic amebicide. Carbarsone has also been widely used.

Extraintestinal amebiasis, considered metastatic from colonic involvement, necessitates dual therapy. Most amebicides are limited in their efficacy to colonic involvement. Specificity, however, characterizes emetine and chloroquine, which, while effective for such involvement, are restricted in efficacy for colonic eradication. Emetine hydrochloride, which was the only effective drug for extraintestinal amebiasis before chloroquine diphosphate was developed, is still endorsed when parenteral administration is imperative. Efficiency and relative freedom from toxicity has rendered chloroquine the drug of choice. For complete therapy, however, both emetine and chloroquine must be supplemented by an agent efficient for colonic eradication of *E. histolytica* and prevention of liver involvement. The combination (Milibis-Aralen) of chloroquine (Aralen) with bismuth glycolylarsanilate is the result of this conclusion. Aspiration of abscesses is often imperative, even with an efficient therapeutic program.

Antibiotic literature shows a trend toward establishment of protozoacidal efficiency. Nutritional and invasive aid accredited to intestinal bacterial flora rationalizes applicability. Therapeutic evaluation of the antibiotics against

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Owing to lack of space, the bibliographic references have been omitted from THE JOURNAL and will appear only in the authors' reprints.

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The following drugs were supplied by the makers for use in this study: oxytetracycline (Terramycin) and carbomycin (Magnamycin) by Chas. Pfizer and Company, Brooklyn; chlortetracycline (Aureomycin) by Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.; and fumagillin (Fumadil) by Abbott Laboratories, North Chicago, Ill.

E. histolytica had its inception with Hargreave's¹⁵ contention of adjunctive penicillin action. Thereafter, publications varying from individual case reports to extensive survey and military sponsorship of various commissions have indicated the intensity of a search for a more satisfactory amebicide.

Extremes in therapeutic achievement, on analysis, suggest variance in susceptibility of parasitic strains, diversity in case severity, inconsistency and inadequacy in follow-up, and lack of uniformity in the mode of antibiotic administration. A sincere attempt to summarize this information was obvious in the conference "Use of Antibiotics in Tropical Diseases," conducted by the New York Academy of Sciences.¹⁰ Therein, however, appeared a conglomeration of individual treatises, little correlation, no acknowledgment of conflict, and a lack of conclusiveness derived from combined opinion.

Several excellent analyses of antibiotic efficacy confined to individual group experiences have been published.¹⁷ No attempt has been made to establish potency, interpret results, or indicate final resolution of the conflicts in therapeutic opinion. Further, two newer antibiotics, fumagillin (Fumadil)¹⁸ and carbomycin (Maganamycin)¹⁹ have entered the field of amebicides for evaluation.

It seems conceded that penicillin and streptomycin act on the bacteria.²⁰ Penicillin and streptomycin alone and in combination have been used to control bacterial growth in *E. histolytica* cultures and to assist in establishing strains of amebas in culture with single strains of bacteria. High concentrations of these two antibiotics have little or no effect on *E. histolytica* in culture.²¹ Streptomycin and penicillin have no value as amebicides.²² Synergism to increase efficiency is suggested in limited study.²³ The therapeutic potentiality of prodigiosin is nullified by its toxicity.²⁴

Chloramphenicol, early recognized as a potentiator of blood dyscrasias²⁵ and an inefficient amebicide,²⁶ should not be considered an acceptable antiamebic substance. The results with bacitracin²⁷ have not been uniformly favorable. From our observations neither neomycin nor erythromycin can be considered more than adjunctive at the present time. Carbomycin, one of the newer antibiotics of promise, is primarily effective against only certain bacteria. It simulates the wide spectrum antibiotics only in antirickettsial and protozoacidal influence. Seneca and Ides²⁸ demonstrated inhibition of *E. histolytica* in cultures of carbomycin, indicating its amebicidal potentiality. Amebicidal efficiency of carbomycin is suggested in early observations but the inadequacy of our follow-up and inept administration of resistant enteric-coated tablets invalidating a group of our studies modifies any conclusion we might have at this time.

Statistics garnered from the literature combined with our own experience permits this therapeutic tabulation for the antibiotics in amebiasis. We are continuing our studies on carbomycin in the treatment of amebiasis. Table 1 summarizes the reports on antibiotic treatment of amebiasis. In this compilation oxytetracycline (Terramycin) holds an enviable position. Fumagillin in a less extensive (numerically) survey is 86% efficient. Chlortetracycline (Aureomycin) is third in efficacy.

Obviously, the other agents are too ineffective to be considered for other than complementary use with an effective direct-acting amebicide. While the incidence of failure indicated here suggests the therapeutic limitation of the antibiotics, we believe there is no panacean amebicide. Further, in this series estimates are based on efficiency of a single agent rather than of combined treatment as in many reports.

Oxytetracycline, chlortetracycline and fumagillin have been used most widely with the most favorable acclaim. These three therefore should be considered individually.

Chlortetracycline.—Chlortetracycline was extracted from a species of *Actinomyces* in soil by Duggar in 1947.²⁰ It is an effective, readily absorbed, wide-spectrum antibiotic.³⁰ Said to be toxicologically benign in therapeutic doses, it frequently precipitates side-effects of consequence that are predominantly gastrointestinal.³¹ Chemical, fungal and hypovitaminotic glossitis, stomatitis, pharyngitis, esophagitis, gastritis, colitis, and proctitis occur.

Because of its wide-spectrum antibacterial action, it is more readily assumed to be an indirect acting amebicide. Hewitt, Spingarn, and associates³² have speculated

TABLE 1.—Summary of Reports on Antibiotic Treatment of Amebiasis

Antibiotic	No. of Patients	No. of Recurrences	Failure Incidence
Chlortetracycline.....	697	116	16.6%
Oxytetracycline.....	433	37	8.5%
Bacitracin.....	205	65	31.2%
Chloramphenicol.....	72	53	73.6%
Neomycin.....	22	14	63.6%
Fumagillin.....	119	28	14.0%

that it has direct action. Phillips³³ confirmed this in his culture of *E. histolytica* with *Trypanosoma cruzi* in the absence of bacteria of any kind.

Experimentally parasitized rats responded to chlortetracycline in Jones' study.³⁴ Other observations were contradictory.³⁵ Watts and Vandegrift cultured strains resistant to chlortetracycline.³⁶ Shaffer and Washington³⁷ did not observe resistance to chlortetracycline, oxytetracycline, or emetine hydrochloride in two strains of *E. histolytica* after 38 serial transfers. Clinical successes were first reported by McVay and his associates.³⁸ Their conclusions were enthusiastically endorsed on incomplete and brief follow-ups by Hughes,³⁹ Gutch,⁴⁰ and associates,^{26a} Most, Conn,⁴¹ Siguier,⁴² Armstrong,^{17c} and others. Because of reports of recurrences,⁴³ treatment with chlortetracycline began to fall into disrepute,⁴⁴ and its use is now completely discredited.⁴⁵

Our experience with chlortetracycline has not been favorable. The report of a 32.2% failure rate by one of us (W. W. F.)^{17a} and a 40% recurrence rate by the other (G. McH.)^{45c} is illustrative. The results in a series of 18 cases at the local Veterans Administration Hospital are postulated favorable with only two recurrences, but the follow-up was inadequate. Beyond this, in a 12 month period we have had 38 patients with amebiasis report for therapy who still had cysts of *E. histolytica* despite recent treatment with the assumed effective dose of chlortetracycline (500 mg. every six hours for a total of 20 gm.).

Comment.—Despite some persistent optimism,⁴⁶ it must be conceded that chlortetracycline has definite limitations as an amebacidal substance. Above and beyond this, the frequency and severity of gastrointestinal side-effects on such a therapeutic regimen often contra-indicate use of this agent.

Oxytetracycline.—Oxytetracycline was developed in 1950.⁴⁷ Its toxicity was recorded as minimal.⁴⁸ Its side-effects in some aspects simulate those of chlortetracycline. With wide-spectrum antibacterial influence, it is thought to be a potential indirect amebacidal substance. Direct action has been difficult to establish.

Tobie and his associates⁴⁹ in their comparative study endorsed oxytetracycline for its “apparent effectiveness of 100%.” Favorable but more reserved reports emanated from many sources.⁵⁰ The situation as summarized by Most and Van Assendelft⁵¹ indicates oxytetracycline is surviving a two year trial, still commended as an effective amebicide. This report is the first with an adequate long term follow-up. Lack of response in hepatic involvement is recorded and amebic abscess of the liver has developed during oxytetracycline therapy.^{45b}

The experience of one of us (W. W. F.)^{17a,d} concurs in an extensive study, which unfortunately did not permit a prolonged follow-up. In a study limited to 18

TABLE 2.—Evaluation of Fumagillin as an Amebicide in Fifty-Nine Cases with a Twelve Month Follow-Up

Type of Involvement	Follow-Up			Type of Recurrences	
	Total No.	No. "Cured"	No. with Recurrences	Acute	Passing of Cysts
Acute amebic dysentery.....	10	8	2	1	1
Chronic amebic dysentery.....	18	18	0	0	0
Asymptomatic passing of cysts	31	27	4	0	4

patients treated with 500 mg. every six hours for a total of 20 gm. in which a 12 month follow-up was achieved, we have had only one recurrence (or reinfection), which was encountered at the six month examination. However, in 11 of these patients, there was an antibiotic-induced diarrhea that persisted an average of five weeks into the post-therapeutic period. Severe stomatitis developed in six persons. Of 17 patients treated with oxytetracycline in the local Veterans Administration Hospital, only one has had a recurrence, but the follow-up was inadequate. If intensive and prolonged therapy is not necessary, some side-effects may be avoidable. During a 12 month period we have encountered 11 patients with persistent amebic parasitization after treatment with a dose schedule of 250 mg. every six hours for a total of 5 gm. prior to seeing us. An additional four patients had been adequately treated by competent observers with recurrence.

Comment.—The generally favorable reports indicate oxytetracycline is an efficient amebicide after adequate trial. Significant side-effects and a definite recurrence rate mitigate against over-enthusiastic acceptance without reservation. No claim for management of extraintestinal amebiasis is endorsed. An over-all 92% “cure” rate is better than that obtained with any of the antibiotics or other amebicides.

Fumagillin.—Isolation of fumagillin was reported by Hanson and Eble in 1949.¹⁸ Initially considered an anti-phage, relatively devoid of antibacterial and antifungal activity, it appeared to be a direct acting amebicide on in vitro studies of McCowen, Callender, and Lawlis.⁵² Evaluation on *T. cruzi* cultures by Hrenoff and Nakamura confirmed amebacidal potency.⁵³

In animals amebacidal efficiency without alteration of intestinal bacterial flora⁵⁴ or appreciable toxicity has been acclaimed.⁵⁵ Its innocuousness was confirmed in man.⁵⁶ Killough indicated vertigo and anorexia as side-effects at 50 mg. daily dosage; dermatitis, nausea, and emesis were precipitated by a daily dose of 200 mg.⁵⁷ Our report indicated intolerance to a dose beyond 60 mg. daily.^{45c} The most frequent side-effects encountered have been nausea, cramping lower abdominal discomfort, distension, and mild diarrhea. These have not approached contraindicative significance, subsidence occurring with or shortly after therapy. Occasionally post-therapeutic vague malaise and superficial desquamation of the hands and feet occur.

Laboratory surveys during and after therapy have shown no significant departure from normal.^{45c} A single patient had post-therapeutic leukopenia with marrow depression but had an uneventful recovery; exacting investigation to estimate a coincidental or precipitated relationship is proposed.

Comparative therapeutic evaluation between fumagillin and two other agents, oxytetracycline and thiocarbarzone, was conducted by Anderson.^{55a} Initial dosage inadequacy is indicated in his report, as suggested and confirmed by the author himself, and is probably substantiated by more recent surveys, all of which enthusiastically report preliminary successes.⁵⁸

During a 17 month evaluation period we have administered fumagillin to 228 ambulatory patients. A preliminary report indicated follow-up difficulty.^{45c} We have discarded all cases in which we could not make personal observations and all instances of incomplete, interrupted, or adjunctive therapy. We did not include patients in this study who had extraintestinal amebiasis.

All patients were treated for 10 consecutive days. The minimum dose schedule was 10 mg. of fumagillin three times a day. Most patients received 20 mg. of fumagillin three times daily. Table 2 shows results obtained with fumagillin therapy.

Fifty-nine patients from our preliminary report^{45c} (of 64 cases) were available 12 months following therapy. These comprised initially 10 instances of acute amebic ulcerative colitis, 18 patients with chronic amebic ulceration, and 31 asymptomatic persons parasitized with *E. histolytica*. In this group there were six recurrences (or reinfections) after therapy. Three were mentioned in the initial report, two of these occurring within the third month and the third at the sixth month examination. The remaining three recurrences (or reinfections) were encountered in the ninth month post-therapeutic check. Re-treatment with fumagillin has been successful in two for six months, but a third has had further recurrence. The remaining three patients on re-treatment were free of parasites in an average follow-up period of 10 weeks.

Comment.—Fumagillin has survived enthusiasm in an adequate evaluation period and is confirmed as an efficient innocuous amebacidal agent if there is adherence to recommended dose levels. A recurrence incidence recorded with fumagillin, as with other therapeutic agents, indicates its limitation and confirms an opinion expressed in 1945, "No one drug is always a successful and complete amebicide." It has not been evaluated in extra-intestinal amebiasis and is probably not therapeutically applicable to such complications.

IN VITRO AMEBACIDAL EVALUATION OF ANTIBIOTICS

Efforts to establish a reliable screening mode whereby efficacy could be established by in vitro survey have been exhaustively studied. Cultural techniques from their

cetin) have a direct effect on several strains of *E. histolytica* grown in a "preconditioned" medium⁶⁴ in the absence of actively multiplying bacteria. In conjunction with us, Shaffer has studied the action of additional antibiotics against several strains of *E. histolytica* in vitro.

The medium employed in this report for maintaining strains of *E. histolytica* used for testing is essentially a "preconditioned" thioglycollate medium to which penicillin G in 0.85% sodium chloride solution and horse serum was added. The fluid thioglycollate medium (no. 136, Baltimore Biological Laboratory) is preconditioned by an anaerobic gram-negative *Streptobacillus* that is cultured in the medium for 24 hours at 37.5 C.⁶⁵ The cultures are then centrifuged, and the supernatant fluid used

TABLE 3.—*In Vitro Effects of Certain Antibiotics on Cultures of Endameba Histolytica*

Tube No.	Antibiotic, Mg./Ml. of Medium	Strains of <i>E. Histolytica</i>								
		0 Hr.	24 Hr.	48 Hr.	0 Hr.	24 Hr.	48 Hr.	0 Hr.	24 Hr.	48 Hr.
Oxytetracycline			Luna		F-22				200	
1.....	0.55	4+	0	0	4+	0	0	4+	0	0
2.....	0.275	4+	1±	0	4+	0	0	4+	1±	0
3.....	0.137	4+	1+	1±	4+	1+	1+	4+	3+	1+
4.....	0.068	4+	4+	4+	4+	4+	3+	4+	4+	4+
Control.....	0.	4+	4+	4+	4+	4+	4+	4+	4+	4+
Chlortetracycline			Luna		F-22				103	
1.....	0.059	4+	0	0	4+	0	0	4+	0	0
2.....	0.029	4+	4+	3+	4+	2+	2+	4+	1±	0
3.....	0.014	4+	4+	4+	4+	4+	4+	4+	2+	2+
Control.....	0.	4+	4+	4+	4+	4+	4+	4+	4+	4+
Chloramphenicol			Luna		F-22				103	
1.....	0.74	4+	0	0	4+	1±	0	4+	0	0
2.....	0.37	4+	1+	1±	4+	3+	1±	4+	2+	0
3.....	0.18	4+	3+	1±	4+	4+	1+	4+	4+	3+
4.....	0.09	4+	4+	1+	4+	4+	2+	4+	4+	3+
5.....	0.04	4+	4+	3+	4+	4+	3+	4+	4+	4+
Control.....	0.	4+	4+	4+	4+	4+	4+	4+	4+	4+
Carbomycin			Luna						K-14	
1.....	10.	4+	0	0	4+	0	0	4+	0	0
2.....	5.	4+	0	0	4+	0	0	4+	0	0
3.....	2.5	4+	0	0	4+	0	0	4+	1±	0
4.....	1.25	4+	1+	4+	4+	1+	1±	4+	2+	3+
5.....	0.1625	4+	4+	4+	4+	4+	4+	4+	4+	4+
Control.....	0.	4+	4+	4+	4+	4+	4+	4+	4+	4+
Fumagillin			Luna						K-14	
1.....	1.25	4+	0	0	4+	0	0	4+	3+	1±
2.....	0.625	4+	0	0	4+	0	0	4+	3+	1±
3.....	0.312	4+	1+	0	4+	0	0	4+	3+	1±
4.....	0.156	4+	3+	0	4+	1±	0	4+	3+	1±
5.....	0.078	4+	3+	0	4+	2+	0	4+	4+	1±
6.....	0.039	4+	3+	0	4+	3+	0	4+	4+	1±
Control.....	0.	4+	4+	3+	4+	4+	3+	4+	4+	3+

initial successes in 1928⁵⁹ indicated bacterial growth requirements for *E. histolytica*.⁶⁰ Nonbacterial cultivation with *T. cruzi* was accomplished by Phillips⁶¹ and has offered a completely nonbacterial medium for testing. Balamuth,⁶² who sponsored egg yolk infusion cultures, conservatively evaluated the various cultural modes and their applicability to in vitro estimates with a plea for greater uniformity in standardization of cultural methods. Although the in vivo conclusions determine the true efficacy of an agent, the screening of preparations for clinical trial may be simplified by an efficient in vitro testing mode. Action in vitro may not be a true evaluation of the amebacidal activity in vivo. Inconclusiveness as to whether direct or indirect amebacidal action occurs with broad-spectrum antibiotics obviously projects itself.

Shaffer and his associates⁶³ have obtained evidence that chlortetracycline and chloramphenicol (Chloromy-

as a base for the *E. histolytica* cultures. The addition of penicillin G prevents active multiplication of the streptobacilli remaining in the supernatant fluid after the majority of the bacterial cells are centrifuged out.

The strains of *E. histolytica* used in this study were inoculated into the "preconditioned" medium and incubated for 48 hours at 37.5 C. The cultures were examined after this period of incubation, and those showing 4+ growth of *E. histolytica* (25 to 50 per low power field) were used for the tests.

Each antibiotic tested was weighed on an analytical balance and dissolved in 0.85% sodium chloride solution to proper concentration, and serial twofold dilutions were made, also in saline. One milliliter of these dilutions was then added to appropriate tubes of amebas. The concentrations were calculated so that the first tube had a final concentration of about 10 mg. per milliliter

of the antibiotic, the second tube 5 mg., and so on for nine tubes. The last tube always received 1 ml. of saline and was used as a control. This range gives an end point on each drug tested. The final volume of the tubes is 4.8 mg. per milliliter; the 1.0 ml. of drug solution added must contain 48 mg. of drug.

Table 3 shows the effect of oxytetracycline, chlortetracycline, chloramphenicol, carbomycin, and fumagillin on several strains of *E. histolytica* maintained in the Shaffer-Frye medium. Since there are few if any actively multiplying bacteria in these cultures of *E. histolytica*, these results indicate a direct action of antibiotics on the amebas in culture.

It is interesting to note that with strain K-14 fumagillin did not cause the disappearance of the amebas in high concentrations but was effective against two other strains in much lower concentrations. Carbomycin was effective against duplicate cultures of K-14. The *E. histolytica* strain K-14 was isolated by one of us (W. W. F.) from a patient with acute amebic dysentery in Korea during the summer of 1951. This strain has been in culture for a much shorter period of time than the other strains used in this study. It must also be noted that the effect of fumagillin at the end of 24 hours and 48 hours differs somewhat from the other antibiotics tested.

These in vitro studies with other strains of *E. histolytica* are being continued by Shaffer in an attempt to determine whether other strains of *E. histolytica* may be resistant to one or more of the antibiotics now used in the treatment of amebiasis. If additional positive evidence of difference in the reactions of various strains to the action of antibiotics does occur in vitro, it may help to explain why certain patients are not cleared of their intestinal infection with *E. histolytica* when treated with one of the antibiotics.

IN VIVO AMEBACIDAL EVALUATION OF ANTIBIOTICS

Working in cooperation with us, Dr. Alfred Longacre attempted to determine recoverable antibiotic in stools following oral administration of oxytetracycline and carbomycin. A review of the literature pertaining to the titration of antibiotic levels in stool specimens, either in vitro or in patients receiving antibiotic therapy, did not reveal any accurate technique for estimation of the amount of antibiotic in the stool. The reports referring to the amounts of antibiotic in stool specimens are restricted to an indication of its presence, or, in some instances, a rough estimate as to the possible percentage of antibiotic in the stool is made. In trying to determine the action of antibiotics and possibly the effective dose level of antibiotics in amebiasis therapy, we thought detailed knowledge of the concentration of the antibiotic in the stool would be of importance. Because of this interest in stool concentration of antibiotics administered orally, a technique, which will be reported in detail later, has been developed. This technique gives consistent results in that 64% of the antibiotic added to a normal stool may be recovered. A correction factor is made on the basis of recoverable antibiotic when the titrations are run in conjunction with a saline control coincidental to the titration.

By this technique for determining the amount of recoverable antibiotic in the stool, the level of antibiotic after oral administration has been studied. In repeated tests in volunteers it has been found that 500 mg. of oxytetracycline given every six hours will result in a concentration in the stool of from 300 to 600 mcg. per gram of stool in from 15 to 20 hours. In a volunteer receiving the antibiotic over a long period of time, there was no significant elevation of the concentration in the stool, which suggests that there is little or no accumulation factor in repeated dosages. Oxytetracycline and carbomycin have been studied, but only preliminary data are available at the present time. These studies will be continued and a complete report presented later. These preliminary results obtained after oral administration of two antibiotics to normal human volunteers must not be interpreted in a clinical sense, and a clinical evaluation of the dose level concentration of the various antibiotics in the stool will have to await a clinical trial controlled by indicated titrations.

Spontaneous recovery, not commonly recognized, has been shown to occur in a recent study of a large series of cases of acute amebic dysentery,^{17a} and this fact must be given consideration in the evaluation of any specific therapy. Certain enterococci by production of lactic acid have been shown to inhibit amebic growth⁶⁵; pigment produced by chromobacterium organisms is also toxic to protozoa.⁶⁶ Either mechanism must be considered in interpretation of in vitro studies.

COMMENT

There is need for a detailed study of the natural history of the *E. histolytica* to explain the many variants encountered. Beyond this our analysis justifies additional amelioration. In the chlortetracycline series, the average patient received 20 gm. over a 10 day period. There were many individual exceptions. Probably all instances of a dose schedule of less than 10 gm. in a 10 day period should be discarded. Were such restriction exacted, there would nevertheless be little difference in the over-all picture, so no departure is indicated.

In the oxytetracycline patients 20 gm. over a 10 day period was more rigidly adhered to. Abbreviated therapeutic periods have been emphasized as being effective, and departures from the schedule were unusual. The general uniformity of therapy therefore has resulted in a more exact evaluation for oxytetracycline.

With fumagillin caution characterized initial studies; a definitely inadequate program resulted in unfavorable early reports. We have sponsored administration of 600 mg. in 10 days. Individual intolerance has demanded some variability in dosage. The optimum program probably lies between 300 and 600 mg. during a 10 day period. Were cases in which this schedule was not met discarded, the general picture would be definitely more favorable for fumagillin. Because the reported cases are fewer than with the two other products, we refrained from any alteration of the statistics.

In follow-up observations a pronounced variability is obvious. With few exceptions, studies after chlortetracycline therapy did not extend beyond six weeks. Many studies were even limited to the treatment period alone, rendering a mean average follow-up of less than four

weeks. With oxytetracycline, the picture is slightly more complete. Most studies were carried beyond the six weeks. One large series assisted in bringing the average follow-up to a mean of eight weeks. The fumagillin situation is materially altered by our extended study. In study of fumagillin we achieved an average follow-up of more than eight months. Obviously both recurrence and reinfection will be increased by extended surveys. This factor depresses the results further with chlortetracycline, probably alters the favorable position of oxytetracycline, and sponsors the position of fumagillin. Under normal circumstances, follow-up study should be continued for three months after therapy.

SUMMARY AND CONCLUSIONS

A composite evaluation of the amebicidal efficacy of the antibiotics is attempted. The difficulty of *in vitro* estimates is reemphasized. The advantages of screening

new amebicides are depicted, with the prospectus for a more accurate mode of study. Despite the inaccuracies obvious in most clinical reports, they must be the basis for true therapeutic evaluation. A dosage schedule should be worked out on a more accurate basis for each antibiotic under trial as an amebicide. Of the broad-spectrum antibiotics, oxytetracycline (Terramycin) is the drug of choice in the management of intestinal amebiasis. Chlortetracycline (Aureomycin) is less efficient. Fumagillin (Fumadil), obviously a direct-acting antibiotic because of its restricted bacterial spectrum, is an efficient amebicidal substance. There is some evidence that combined therapy may be more efficient than any antibiotic alone because of the distinct difference in mode of action and the depicted therapeutic limitation. Hepatitis, hepatic abscess, and other extracolonic amebic involvements are not benefited by treatment with the antibiotics evaluated.

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MODERN TREATMENT OF HIRSCHSPRUNG'S DISEASE

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Hirschsprung's disease (congenital megacolon) is a congenital malformation of the pelvic parasympathetic system consisting of absence of ganglion cells in Auerbach's plexus in a variable portion of the distal colon that is supplied by the pelvic nerve. The length of colon involved in this ganglionic deficit varies but always includes the internal sphincter, the rectum, and rectosigmoid.¹ The lesion may extend more proximally, but rarely beyond the sigmoid. In some instances longer portions of colon may be involved, but rarely the whole colon; and in these situations a congenital malformation exists in the vagal fibers that supply the colon to some point in the sigmoid, as well as the pelvic parasympathetic nerve that supplies the remainder of the colon.

The detection of the congenital lesion in the intestine wall can be made on histological sections stained with hematoxylin, eosin, or other routine tissue stain. That special stains are required to identify the ganglion cells of Auerbach's plexus is a common misconception. Cells are found in clusters between the circular and longitudinal muscular layers, and the average-sized histological section of intestine wall invariably contains some of these large ganglion cells. They are easily recognized because of their large size, finely granular cytoplasm, large nucleus, and prominent nucleolus. These cells can be identified accurately in frozen sections of colon wall, and this technique is used at operation to assure that all of the aganglionic intestine is resected.

The congenital absence of Auerbach's ganglion cells is probably related to the failure of normal peristalsis to traverse the affected intestine. The colon proximal to this segment has a normal distribution of ganglion cells, and peristalsis of normal amplitude and progression is present. This absence of peristalsis in the distal colon accounts for the intestinal stasis and the well-known symptoms of this disease.²

PROCEDURES IN DIAGNOSIS

Children with constipation can be divided into two groups. Those with chronic constipation due to bad habit or a psychogenic cause have an onset of constipation at 2 or 3 years of age. Patients with the rarer Hirschsprung's disease have a history of constipation dating from birth, and frequently symptoms are severe enough during the first few days of life to simulate ileal obstruction. Some consequently have been explored with that diagnosis.

Examination of the patient gives further information that aids in the differentiation of these two groups of patients. Children with chronic constipation on a habit basis rarely have abdominal distension; however, patients with Hirschsprung's disease have varying degrees of distension, and it is rarely completely absent. Rectal examination offers another clue to the correct diagnosis. Children with habit constipation have impactions in the rectum; whereas patients with Hirschsprung's disease usually have impactions in the sigmoid above the congenital lesion, and the rectum is empty.

While these symptoms and signs are helpful in determining whether the patient has true Hirschsprung's disease, surgery should not be done until the diagnosis has been confirmed with a barium enema. This examination is difficult to perform, and painstaking attention must be given to several details. A small amount of barium should be injected and observed fluoroscopically with the patient in an oblique or lateral position. The flow of

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Read before the Section on Surgery, General and Abdominal, at the 102nd Annual Meeting of the American Medical Association, New York, June 4, 1953.

1. Swenson, O.: Congenital Megacolon (Hirschsprung's Disease): Follow-up on 82 Patients Treated Surgically, *Pediatrics* 8:542-547 (Oct.) 1951.

2. Swenson, O.; Rheinlander, H. F., and Diamond, I.: Hirschsprung's Disease: New Concept of Etiology; Operative Results in 34 Patients, *New England J. Med.* 241:551-556 (Oct. 13) 1949.

barium is stopped as soon as the contrast media partially fills the dilated portion of the colon. Filling the sigmoid loop completely may obscure the outline of the rectosigmoid, which must be clearly visualized for the diagnosis.

Unless there is a dramatic narrowing over a distance of 8 to 10 cm. with marked dilatation of the colon above, the diagnosis of Hirschsprung's disease cannot be made (fig. 1). Observation of slight narrowing, 2 to 3 cm. in length, in some portion of the sigmoid, with dilatation of the colon above and below, is not sufficient for a diagnosis of Hirschsprung's disease. Another important roentgen sign is the inability of the patient with Hirschsprung's disease to empty the colon, and this loss of function should be recorded on a postevacuation



Fig. 1.—Roentgenogram demonstrating narrowing of the rectum and rectosigmoid with marked dilatation of the sigmoid. This is pathognomonic of Hirschsprung's disease.

roentgenogram. Dilatation of the colon of itself is of little diagnostic value, for this condition may be due to a number of causes, particularly chronic constipation.

RESECTION OF AGANGLIONIC INTESTINE

Resection of the aganglionic rectum and rectosigmoid and performance of a pull-through anastomosis is a difficult operation that must be performed with precision to assure good results. It should not be undertaken unless the surgeon is experienced in this field and completely understands this intricate procedure.³ In 122 patients it has been possible to resect all of the aganglionic intestine down to the internal sphincter and to re-establish continuity of the colon without disturbing anal

continence.⁴ Recently it has been suggested that only the portion of aganglionic intestine above the pelvic peritoneum should be removed. This was suggested by State on the supposition that impotence would be the inevitable result if the resection were performed down to the internal sphincter.⁵ In the series of 122 patients



Fig. 2.—A, photograph of a 10-year-old boy with advanced Hirschsprung's disease. B, same patient one year after resection. Abdominal contour has returned to normal.

there have been 4 adults whose ejaculation has not been disturbed by resection of the aganglionic intestine to the internal sphincter. In 43% of the patients the lesion extended only to, or just above, the pelvic peritoneal floor. If only a segment of colon above the pelvic floor were resected, this group could not be helped by such an operation, for little, if any, aganglionic bowel would be removed. The 55% with lesions extending above

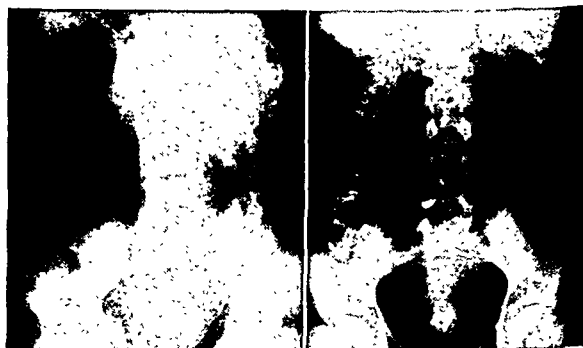


Fig. 3.—A, preoperative roentgenogram of patient with Hirschsprung's disease. B, repeat barium enema on the same patient three months later. The colon can be emptied.

the pelvic floor would be helped by a resection but not completely relieved. Furthermore, leaving a 5 to 8 cm. length of aganglionic intestine in these patients would, over a period of time, cause recurrence, as has been reported by Hiatt.⁶ It is hard to justify a procedure that leaves a segment of aganglionic colon in place equal in

3. Swenson, O.: New Surgical Treatment for Hirschsprung's Disease, *Surgery* 28: 371-381 (Aug.) 1950.

4. Sixty-five were operated on at Children's Hospital, Boston.

5. State, D.: Surgical Treatment for Idiopathic Congenital Megacolon (Hirschsprung's Disease), *Surg., Gynec. & Obst.* 95: 201-212 (Aug.) 1952.

6. Hiatt, R. B.: Surgical Treatment of Congenital Megacolon, *Ann. Surg.* 133: 321-329 (March) 1951.

length to the defective segment in some patients who have fairly severe disease. If patients with Hirschsprung's disease are to be treated surgically they should have a complete procedure, which consists of removing all of the aganglionic colon.

RESULTS

There have been 5 postoperative deaths in 122 patients operated on; 4 were infants under 8 weeks old who were in extremely poor condition and one was a child 2½ years old. Two of them had preliminary colostomies, and in three the resections were primary. The causes of death in this group of patients were as follows: In one there was recurrence of the disease, because the resection had not extended far enough proximally; this infant did not do well after the first operation and died after a second resection. Another patient died because of intestinal obstruction with formation of fistulas between loops of small intestines. A third patient died with bilateral adrenal hemorrhage a week after operation. The fourth patient was an infant with a severe congenital heart lesion. The fifth patient, a child with megalobladder and megaloureters, as well as megacolon, tolerated the resection but died one week later following a severe generalized convulsion.

There have been some complications postoperatively. One severe stricture was due to a poor technical anastomosis. It occurred early in our experience and fortunately has not been encountered again. There has been one rectovaginal fistula resulting from a suture that was inadvertently placed through the posterior vaginal wall as the anastomosis was made. This patient had colostomy performed two months after the resection, and the fistula closed spontaneously. The colostomy was closed a year later, and the patient is doing well without any evidence of recurrence of the rectovaginal fistula. There have been minor urinary infections but no impairment of bladder function.

The patients tend to have diarrhea for a few weeks following operation. This gradually subsides, and the patients then have one to two bowel movements a day. They have normal urge to evacuate the colon and have adequate movements daily without help of diet, laxatives, or enemas. The abdominal distension disappears in the course of eight months to a year (fig. 2). The colon gradually returns to essentially normal size, and, most important, emptying of the colon occurs (fig. 3). Some of the patients have been followed for as long as six years.

20 Ash St. (11).

CONTROL OF TRICHINOSIS BY GAMMA IRRADIATION OF PORK

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and

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The effect of exposure of trichinous pork to gamma irradiation as a possible means of controlling the disease trichinosis in swine and man has occupied our attention during the past 18 months. By way of introduction, it might be well first to outline the cycle of trichinous infection. In man, trichinosis is contracted from ingestion of meat (nearly always pork) containing viable larvae of *Trichinella spiralis*. In hogs, the principal source of infection is trichinous pork eaten as scraps discarded from the kitchen. On ingestion of the infected meat, the muscle fibers and the cyst walls that enclose the parasites are digested, liberating the larvae. In the small intestine the larvae mature in three or four days to adult worms that then copulate. Toward the end of the first week, gravid females partially embedded in the mucosa of the intestine begin to give birth to young larvae of the second generation. It is believed that, during the next few weeks (in man 8 to 10 weeks), each female gives birth to about 1,500 larvae that enter the intestinal lymphatics and then the blood stream; from there they are carried into the general arterial circulation. The young larvae leave the capillaries and penetrate the skeletal muscle fibers, where they progressively enlarge, coil, and encyst during the ensuing four weeks. Except in the remote possibilities of the eating of human flesh by rats, especially where burial is above ground, or of cannibalism, the parasitic cycle in man ends with the completion of the stage of encystment, but the encysted parasites

generally remain alive in a latent state, without producing symptoms, for the rest of the life of the infected person. In hogs, however, the parasitic cycle is continued when uncooked, or insufficiently cooked, meat of a trichinous pig is eaten by another pig.

Symptoms of human trichinosis may be divided into two broad groups: (1) gastrointestinal symptoms that generally occur during the first or second week after infection and are the result of irritation of the intestinal tract by the ingested larvae and the adult worms that develop from them and (2) general symptoms that occur during the ensuing three to five weeks and result from dissemination of the second generation of larvae in the body of the host, particularly from their localization in the skeletal muscles and from complications of the disease.

About 1.5% of all hogs slaughtered in the United States are infected with larvae of *T. spiralis*. We believe that, as a result of eating trichinous pork, about 25% of all Americans during their lifetime will harbor the para-

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Read before the Section on Pathology and Physiology at the 102nd Annual Meeting of the American Medical Association, New York, June 3, 1953.

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site in their muscles. The average mortality among persons with clinical trichinosis in the United States is 5 to 6%.

Of all pork produced, only the relatively small proportion that is processed by heating, freezing, or other method, according to governmental regulations (principally in packing plants that are under federal inspection), is free from the danger of trichinosis. Such products, offered for sale to be eaten without need for cooking them further, carry the implied warranty of their fitness for human consumption. Raw pork, however, even when bearing the stamp "U. S. inspected and passed," carries no such warranty. The consumer of pork, therefore, generally must be responsible for avoiding trichinosis by determining, if he can, whether all portions of the pork or pork product that he is about to eat are thoroughly cooked and show no trace of pink.



Fig. 1.—Section of trichinous ham in which have been placed a number of dosimeters consisting of capsules of ferrous sulfate solution to calibrate dose of gamma radiation at different points in the meat. The screen cage behind the meat rests on a platform over an opening that communicates with a pit in the ground in which the cobalt 60 source lies beneath 14 ft. (430 cm.) of water. The cobalt source is raised by remote control into the screen cage for the desired period of irradiation.

The following methods are designed to prevent trichinous infection: 1. Microscopic inspection of specimens of pork from the carcass of every hog slaughtered is practiced in Germany and some other countries of Europe and South America but is regarded as impractical in the United States. 2. Cooking of all garbage that is to be fed to hogs is in force in England, Canada, and a number of states in the United States and is of unquestioned value in control of trichinosis as well as of certain other diseases

of hogs, including vesicular exanthema, hog cholera, and hoof-and-mouth disease. The chief limitation of the method, however, lies in the difficulty of constant enforcement. 3. Low temperature treatment (5 F for 20 days for packages of pork not over 6 in. [15.2 cm.] in thickness) can be used; while a temperature as low as -34.6 F (-37 C) will kill trichina larvae within a few minutes,¹ the production of this low temperature in all portions of the meat is relatively time consuming and economically impractical at present. 4. Special methods of processing can be required by the federal government in U. S. inspected plants for pork and pork products that will be sold for consumption without further treatment. 5. Cooking should be thorough so that every portion of the pork is heated to a minimum temperature of 137 F.

In actual practice in the United States, the principal method for protection against trichinosis is adequate cooking of pork. This means that at the present time the responsibility of cooking pork adequately, and thus avoiding trichinosis, rests principally on the housewife or cook. The consumer generally does not examine the pork that he eats to determine if it has been cooked adequately. Even if he were to examine the meat, he would often be unable to decide if cooking was adequate. Furthermore, in many meat products, such as hamburgers, frankfurters, meat loaf, chop suey, and some sausages, the consumer generally does not know if pork has been added. In eating pork and meats containing pork, he, knowingly or unknowingly, often risks contracting trichinosis. An effective method of prevention or control of the disease in this country, therefore, is needed.

During the past year and a half we have been studying the effects of gamma radiation as a possible new method for the control of trichinosis by irradiation of raw pork. In a previous study on the effect of 200 kv. x-rays on trichina larvae, Gould, Van Dyke, and Gomberg² showed that a relatively large dose (750,000 r) is required to kill trichina larvae in vitro but that much smaller doses (3,500 to 5,000 r) are effective in preventing the reproduction of trichinae. Exposure of trichinous meat in thickness of less than 1.5 cm. to x-radiation in a dose of 15,000 r rendered the larvae in the meat noninfective to experimental rats.

Gomberg and Gould³ then studied the effect of cobalt 60 on trichina larvae and obtained similar results. A dose of 750,000 r was required to kill the larvae in vitro. When trichinous rat meat was irradiated, a dose of 15,000 r produced sexual sterilization of the larvae, and a dose of 18,000 r prevented 99% of the larvae from maturing to adult forms. Our present work concerns the effects of exposure of trichinous pork to gamma irradiation of Co⁶⁰ and of waste fission material contained in old nuclear fuel rods.

METHOD

Two pigs, a barrow and a gilt, each about 3 months old and weighing about 120 lb. (54 kg.), were each infected with about 60,000 isolated larvae of *T. spiralis* in their feed on Dec. 24, 1951. At the time of slaughter 16 and 17 months later, respectively, each of the hogs weighed about 450 lb. (204 kg.). The concentration of larvae per gram of muscle in the barrow was 267 in the tongue, 345 in the diaphragm, 73 in the ham muscles, and 44 in

1. Gould, S. E., and Kaasa, L. J.: Low Temperature Treatment of Pork: Effect of Certain Low Temperatures on Viability of Trichina Larvae, *Am. J. Hyg.* 49: 17-24, 1949.

2. Gould, S. E.; Van Dyke, J. G., and Gomberg, H. J.: Effect of X-rays on Trichina Larvae, *Am. J. Path.* 29: 323-337, 1953.

3. Gomberg, H. J., and Gould, S. E.: Effect of Irradiation with Cobalt-60 on Trichina Larvae, *Science* 118: 75-77, 1953.

4. Brownell, L. E., and others: Utilization of Gross Fission Products, Engineering Research Institute: Progress Report 4 (AEC Report No. COO-124), Ann Arbor, Mich., University of Michigan, 1953.

the leg muscles; in the gilt, 590 larvae per gram of tongue were recovered and 152 per gram of shoulder muscle.

Large portions (except for one, each portion weighed about 50 lb. [23 kg.]) of the trichinous pork from these hogs were exposed to gamma irradiation from a 10,000 curie source of Co^{60} at the Fission Products Laboratory of the University of Michigan. This source is housed in a specially constructed room and is operated by remote control.⁴ When calculated from measurements made with r-meter chambers, the dose of irradiation delivered at 17 in. (43.2 cm.) from the source was 13,200 r, and at 8½ in. (21.6 cm.), 34,000 r. In general, the irradiated meat was excised in segments that measured about 4 by 4 in. (10 by 10 cm.) in surface area and 2 in. (5 cm.) in thickness. The dose delivered to each segment of meat varied approximately in inverse proportion to the square of the distance from the source; the dose also varied

pork, a large ham, was exposed for 5 hours and 20 minutes to a total calculated dose ranging from 3,000 to 9,400 r. A second portion of pork, a shoulder, was exposed for 20 hours, resulting in doses ranging from about 13,000 r to about 60,000 r. A detailed description of the technical aspects of the irradiation experiments will be published elsewhere. In all, 21 sections of meat, each selected for a given dose range, were tested for the effect of gamma radiation from the fuel rods.

In each experiment a number of segments of the irradiated meat were excised and digested for recovery of larvae. Four control white rats were each fed by stomach tube with 5,000 larvae isolated from nonirradiated pork, and usually four test rats were each fed with 5,000 larvae isolated from each segment of the irradiated meat. At six days, two control rats and half (usually two) of each group of test rats were sacrificed and the contents of their

TABLE 1.—Effect of Cobalt 60 Irradiation of Trichinous Pork (Shoulder) on Trichinae Isolated from the Meat*

Segment of Meat	Estimated Dose of Co^{60} , r †	No. of Rats Each Fed 5,000 Larvae	Adult Trichinae Recovered from Small Intestine After 6 Days			Trichina Larvae of Second Generation Recovered from Muscles of Rats After 30 Days	
			Total No. ‡	No. of Females Examined	% of Females Gravid	Total No. ‡	Avg. No. of Larvae per Low Power Field of Microscopic Section of Tongue
	0 (Control)	4	3,000 2,750	100 100	97 100		
A.....	11,830	2	1,000	100	0	198,000 75,000	35 8
B.....	10,350	4	240 600	50 100	8 24	0	0
C.....	10,350	4	2,500 400	100 50	6 10	2,000 2,400	< 1 < 1
D.....	9,600	4	1,250 2,000	100 100	6 2	0 400	0 < 1
E.....	9,500	1	410	50	26	1,890 2,700	< 1 1
F.....	8,000	4	100 200	50 50	68 64		
						1 67	0 < 1

* Portion of meat measuring 20 by 17 by 9 in. (50.8 by 43.2 by 22.9 cm.) and weighing 50 lb. (22.7 kg.) was exposed to 10,000 curies of Co^{60} for a half hour on each side, at distance of 12 to 13 in. (30 to 33 cm.) from source (center about 17 in. from source).

† Based on the calculation that the dose 10 in. (25.4 cm.) from the surface was equivalent to 50% of the dose at the surface.

‡ Each number represents the finding in a single rat.

because of absorption of radiation passing through the meat. Measurements were made by means of r-meter chambers, a Victoreen rate meter, and by capsules containing ferrous sulfate solution placed at designated points in the meat (fig. 1). Six tests with Co^{60} were done; 35 pieces of irradiated trichinous pork were tested.

In addition, two portions of trichinous pork, each weighing 50 lb. were irradiated with fission products contained in old fuel rods from reactors obtained from the Hanford, Wash., laboratory of the Atomic Energy Commission. These rods, containing uranium, are the basic operating elements of nuclear reactors. The irradiation was carried out under 20 ft. (610 cm.) of water in the storage canal of the Chemical Processing Plant of the National Reactor Test Station at Idaho Falls, Idaho. The effect of the radiation on the trichinae was correlated with the dose reaching a given area in the meat by measuring the radiation with chemical dosimeters distributed through the meat. One of the two portions of

small intestines examined for adult trichinae. From each rat sacrificed at this time, 50 or 100 female adult worms were examined for the presence of embryos in the uterus. At 30 days, the other two control rats and the other half of each group of test rats were sacrificed and their skeletal muscles digested and examined for the presence of young larvae. Microscopic sections also were taken from the tongue, diaphragm and muscle of an extremity for the presence of young larvae. In all, 56 pieces of meat were tested and 225 white rats were used in these experiments. The details of the technical methods of recovery of larvae and adult forms of trichinae are given elsewhere.⁵

RESULTS

Table 1 shows that, when portions of trichinous pork were exposed to doses of 9,500 to 10,350 r of Co^{60} , sexual sterility was produced in 74 to 98% of the gravid female

5. Gould and others.² Gould, S. E.: Trichinosis, Springfield, Ill., Charles C Thomas, Publisher, 1945.

adult trichinae recovered from the intestines of test rats after six days. When a dose of 11,830 r was given to the meat, sterility was found in 100% of the female adults. Figure 2 presents these findings graphically. Figure 3 is a

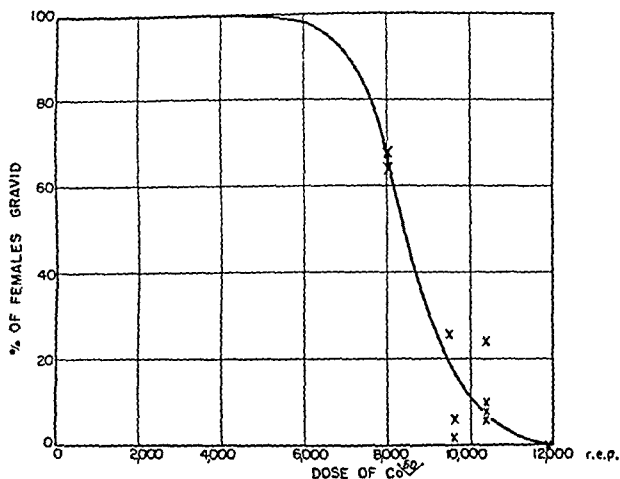


Fig. 2.—Sterilizing effect of cobalt 60 irradiation on trichina larvae in pork. After irradiation, 5,000 larvae from the meat were tube-fed to test rats. Six days later, the rats were sacrificed and adult female trichinae, recovered from the intestinal tract of test rats (and of control rats), were examined for evidence of sterility.

normal, adult, gravid female trichina worm recovered from the small intestine of a test white rat six days after the latter was experimentally fed nonirradiated trichina larvae. The uterus is filled in its posterior two-thirds with eggs and in its anterior third with young embryos. Also

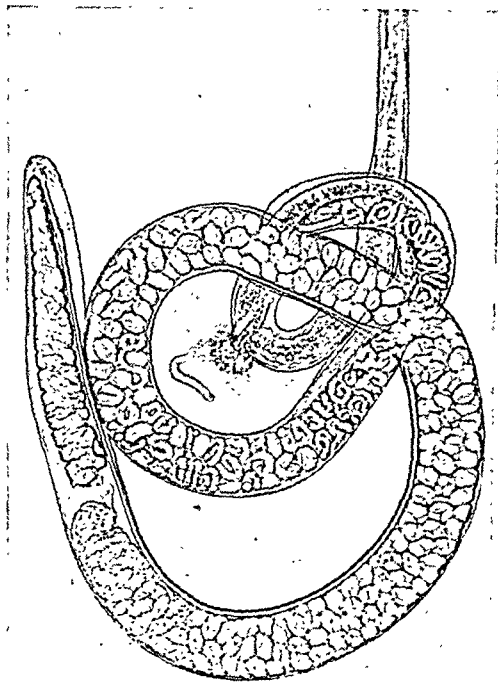


Fig. 3.—Nonirradiated adult gravid female *Trichinella spiralis*. Note numerous young embryos in anterior portion of uterus and a newborn larva that has just been expelled from the vulval opening. ($\times 155$).

seen is a newborn young larva that has just been expelled from the vulval opening. Figure 4, taken at a higher magnification, shows an adult female trichina of the same age recovered from the small intestine of a test rat six days

after the latter was fed trichina larvae digested from trichinous meat exposed to 10,240 r of Co^{60} . The parasite is shorter than normal, its cuticular covering is thickened, and the cells are lacking in detail and apparently undergoing degeneration. No eggs or young embryos can be recognized in the uterus, the worm having been rendered sterile by radiation applied to it during its larval stage.

In table 2 the calculated lowest dose of Co^{60} applied was 12,000 r. In three of four test rats, no adult trichinae were recovered, but in a fourth rat 650 adults were found and all of 100 female adults examined were sterile. These findings agree with those shown in table 1, in which it is indicated that sterilization was produced by a calculated dose of 11,830 r. Table 2 also shows that among 16 rats fed larvae from meat exposed to 19,200 to 23,660 r of radiation, 7 of 8 had no adult trichinae in their intestinal tract after six days and one (exposed to 20,700 r) had

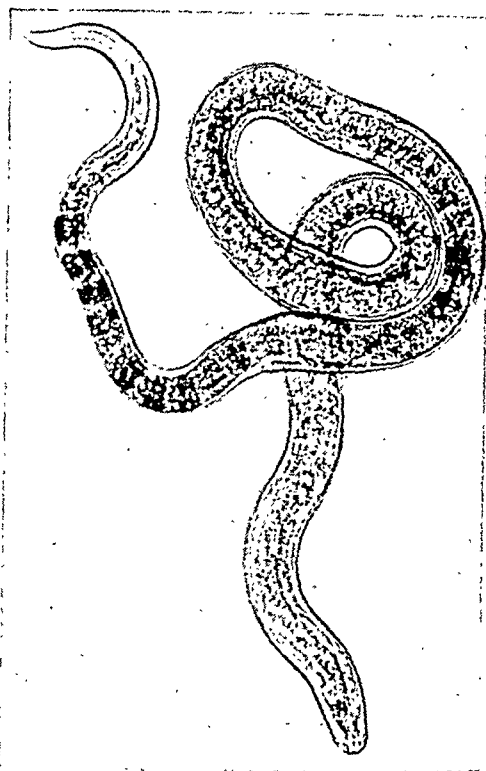


Fig. 4.—Sterile adult gravid female *Trichinella spiralis* ($\times 180$) showing stunting of growth and degenerative cellular changes after exposure to 10,240 r of cobalt 60.

three partially developed sterile female adults. Two factors lead to a nonuniform dose of radiation in the meat: (1) Absorption of radiation by the meat and (2) loss in strength of field of radiation as the distance from the source is increased. Owing to absorption alone, it was found that in a large portion of pork (20 in. [50.8 cm.] in thickness) the value of the surface radiation falls to half when the radiation reaches a depth of 10 in. from the surface, and with application of an equal amount of radiation to each surface, at the same distance, the dose at the center of a 20 in. mass of pork will be 80% of the dose at each surface. In practice, however, the variation resulting from distance will increase this differential in some manner, depending upon the shape of the source and the distance of the source from the meat.

COMMENT

Alicata and Burr^a exposed trichinous rat meat to 12,000 r of gamma radiation of Co⁶⁰ applied over a period of four days and found that sterility was produced in 60 to 100% of the adult female worms developing in the intestinal tract from larvae present in the irradiated meat. In our experiments with trichinous rat meat a single dose of 12,000 r gamma radiation of Co⁶⁰, applied over a period of about 10 minutes, produced sterility in from 80 to 100% of adult females and a dose of 15,000 r produced sterility in 100%. The results of irradiation of pork with Co⁶⁰ agree well with findings in our previous experiments on irradiation of trichinous rat meat with Co⁶⁰. In trichinous pork a dose of approximately 15,000 r was required to produce complete sterilization and a dose of approximately 18,000 r to prevent maturation of larvae to adult forms.

In the trichinous pork exposed to the fuel rods, conditions of operation could not be adequately controlled inasmuch as the meat had to be suspended over the irradi-

adult trichinae or prevent maturation of the larvae to adult forms will break the trichina cycle and thus prevent the development of the muscular phase of trichinosis in the potential host. It may not, however, prevent the development of gastrointestinal symptoms in the host, which occur in approximately one-half of clinical cases of human trichinosis as a result of irritation of the small intestine by the parasites which partially penetrate the mucosa.

In a small percentage of persons with gastrointestinal symptoms, diarrhea may be a serious event, particularly if it is severe, long maintained, or occurs in an aged or debilitated person. It is also possible for the number of living larvae ingested with the infected meat to be so large as to produce acute fatal enteritis. Preliminary experiments indicate that, when white rats are fed larvae exposed to only 10,000 r, in numbers equal to a fatal dose of nonirradiated larvae, the animals at most will suffer a temporary diarrhea, presumably as a result of irritation of the intestinal mucosa by the larvae. Irradia-

TABLE 2.—Effect of Cobalt 60 Irradiation of Trichinous Pork (Ham) on Trichina Larvae Isolated from the Meat*

Segment of Meat	Estimated Dose of Co ⁶⁰ , r †	No. of Rats Each Fed 5,000 Larvae	Adult Trichinae Recovered from Small Intestine After 6 Days			Trichina Larvae of Second Generation Recovered from Muscles of Rats After 30 Days	
			Total No. ‡	No. of Females Examined	% of Females Gravid	Total No. ‡	Avg. No. of Larvae per Low Power Field (× 430) of Microscopic Section of Tongue
	0 (Control)	4	2,750 2,000	100 100	100 100		
A.....	23,600	4	0 0			60,000 40,800	35 30
B.....	20,700	4	0 0			0 0	0 0
C.....	20,700	4	3 0	3	0	0 0	0 0
D.....	19,200	4	0 0			0 0	0 0
E.....	12,000	4	650	100	0	0 0 0	0 0 0

* Ham measuring 15 by 15 by 8½ in. (38.1 by 38.1 by 21.6 cm.) and weighing 48 lb. (21.8 kg.) was exposed to 10,000 curies of Co⁶⁰ for one hour on each side at distance of 12 to 13 in. (30 to 33 cm.) from source (center of meat 16 to 17 in. [40 to 43 cm.] from source).

† Based on the calculation that the dose 10 in. (25.4 cm.) from the surface was equivalent to 50% of the dose at the surface.

‡ Each number represents the finding in a single rat.

ator with a 20 ft. rope and the radiation dose varied markedly with the position of the meat with respect to the radiator. Among other disturbing factors was shrinkage of the rope as it absorbed water. By use of dosimeters inserted in the meat, information obtained regarding the doses given was more accurate than would be possible merely from observation of the position of the meat with respect to the irradiator.

The radiation from the fission products appeared to produce the same results regarding sterilization of trichina larvae as were obtained from Co⁶⁰ radiation in doses about 10% higher. Since the spectrum of radiation from the fuel rods could not be obtained, however, the reason for this somewhat higher effectiveness could not be determined. The chief implications from these tests are that irradiation by fission products is as effective as Co⁶⁰ in breaking the trichina cycle and that further studies are necessary under conditions that are more adequately controlled.

In applying the findings to possible commercial irradiation of raw pork as a means of controlling trichinosis, it is obvious that a dose that will either produce sterility of the

tion thus appears to suppress the observed intestinal effects on feeding of intact larvae. The extent of this suppression, as a function of the dose of radiation, is now being studied. It would, therefore, be best if the dose of irradiation to trichinous pork be large enough to prevent maturation of the larvae to adult worms. From our findings a dose of 18,000 to 20,000 r would accomplish this. Practically, it would seem that a margin of safety of about 50% should be allowed, so that the dose of irradiation recommended for prevention of maturation of the larvae should be increased to 30,000 r. However, further experimental work is being conducted to determine the effect of feeding massive numbers of larvae from trichinous pork irradiated at this dose. By actual tests made in the Fission Products Laboratory of the University of Michigan, no flavor changes detectable by taste and no known deleterious effects were induced in pork exposed to approximately 40,000 r of irradiation with Co⁶⁰. There is, of course, no radiation stored in the meat as a result of

6. Alicata, J. E., and Burr, G. O.: Preliminary Observations on Biological Effects of Radiation on Life Cycle of Trichinella Spiralis, Science 109: 595-596, 1949.

gamma irradiation, and there is no known harmful effect that can be produced in a person from ingestion of such irradiated meat.

Since Co^{60} represents a form of nuclear radiation that is induced, it is quite expensive at present. Waste fission products of "atomic" radiation may be cheaper and theoretically could be used to yield the desired amount of radiation inexpensively and rapidly. Further investigations are being conducted along these lines.

SUMMARY AND CONCLUSIONS

The results of irradiation of trichinous pork with cobalt 60, and of a preliminary study of irradiation with waste fission material contained in old nuclear fuel rods, agree with our previous findings on effects of Co^{60} on trichinous rat meat. These results indicate that exposure of all raw pork to gamma radiation of waste fission products may be a practical means of controlling trichinosis in man and pig.

POLYPS OF RECTUM AND COLON

Neil W. Swinton, M.D., Boston

The intimate relationship between benign mucosal polyps and cancer of the colon and rectum (fig. 1) has been generally recognized, particularly by surgeons and pathologists who have had a special interest in this disease. Several general statements can be made that summarize this relationship. (1) Benign mucosal polyps of the rectum and colon occur in both sexes, slightly more commonly in males than in females, and at all ages. They occur with increasing frequency in the older age groups. (2) Polyps are frequently multiple and are found in our experience in approximately 25% of all surgical specimens removed for cancer of these organs. (3) There is a definite similarity between the age incidence and location of benign mucosal polyps and of malignant disease of the colon and rectum. (4) All stages between benign mucosal polyps and carcinoma of the colon and rectum can be demonstrated histologically. (5) Benign mucosal polyps are true tumors and must be considered as premalignant lesions. They are the result of some inherent defect in cellular growth, and not the result of an inflammatory process. (6) A high percentage of the malignant lesions of the colon and rectum originates in preexisting benign mucosal polyps. Therefore, when such premalignant lesions are discovered, they must be removed or destroyed without delay.

If we are to approach the ideal in the treatment of malignant disease of the rectum and colon, which is prevention, there must be a widespread appreciation of this problem by all physicians as well as by surgeons who are performing general diagnostic studies. The purpose of this presentation is to review our knowledge of this subject based on our past experiences at the Lahey Clinic. We have treated a large number of patients with colon and rectal polyps and have recently reviewed in detail a series of 400 patients with this condition treated between 1945 and 1950.

The sizes of the polyps in this series of patients were as follows: 230 were under 0.5 cm. in diameter, 114 were 0.5 to 1.5 cm., and 101 were over 1.5 cm. Four hundred thirty-six were adenomas, and 34 (8%) were papillary adenomas (villous). The incidence of polyps

was greater in the older patients (table 1). Rectal and colon polyps occur much more frequently than has been recognized in the past. At the pathological laboratory of the New England Deaconess Hospital, in the 1,843 consecutive autopsies performed on patients dying between 1935 and 1945 of all causes, benign mucosal polyps of the rectum and colon were found in 7% of the cases. Helwig¹ has found an incidence of 9.5% in an autopsy series of over 1,400 patients. Clinically, we have found polyps in 5% of all patients undergoing sigmoidoscopy who are over 35 years of age, regardless of symptoms. In our autopsy series, polyps were found to be single in 58% of the cases and multiple in 42%. Clinically, polyps have been found to be single in 73% of the patients examined and multiple in 27%. Our studies reveal that 56% of the patients were men and 44% were women.

It has been difficult to estimate accurately the number of patients found to have colon and rectal polyps who have symptoms directly related to these polyps. In our experience the majority of these patients do not complain of bleeding or an alteration in bowel function or abdominal pain, which are the classical symptoms associated with malignant disease of these organs. How, then, since so many patients with rectal and colon polyps do not have symptoms and since polyps occur so frequently, are we to discover lesions of this type? It will be only by the recognition of these facts and by the inclusion of sigmoidoscopic examinations and, on occasion, radiographic studies of the colon for all patients presenting themselves for complete physical examination that we will be able to find benign mucosal polyps of the rectum and colon in large numbers. This has become the policy of the clinic and should be the policy of all physicians doing general diagnostic work. The increase in the number of benign polyps detected in our patients has been in direct proportion to the number of sigmoidoscopic examinations performed, regardless of symptoms.

EXAMINATION

All patients who come to the clinic for a complete physical examination have a careful digital examination of the rectum. A certain number of these patients should be given a sigmoidoscopic examination without preparation. When there has been a recent diarrhea, obvious colitis, a suggestion of some intra-abdominal inflammatory condition, bowel obstruction, or an easily palpable rectal tumor, preparation of the bowel may be contra-

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Read before the joint meeting of the Section on Gastroenterology and Proctology and the Section on Pathology and Physiology at the 102nd Annual Meeting of the American Medical Association, New York, June 4, 1953.

1. Helwig, E. B.: Evolution of Adenomas of Large Intestine and Their Relation to Carcinoma, *Surg., Gynec. & Obst.* 34: 36-49 (Jan.) 1947.

indicated. When there are no contraindications, however, the patient should be carefully prepared before instrumental and radiographic studies are performed (fig. 2). Castor oil, 1.5 to 2 oz. (45 to 60 cc.), is taken by the patient the night before the examination. On the morning of the examination a careful colonic irrigation is given under trained supervision. The sigmoidoscopic examination may be done a short time after this irrigation. With



Fig. 1.—Surgically removed specimen of rectum showing multiple small, benign mucosal polyps or adenomas, one larger adenoma with a definite pedicle, and an adenocarcinoma.

this method of preparation it must be remembered that adequate suction apparatus must be available at the time of the examination. After a short interval, in order to allow for the evacuation of air that may have accumulated in the colon during the introduction of the sigmoidoscope, satisfactory radiographic studies of the colon can be made. Our technique for the radiographic study of the colon has previously been reported before this section of the American Medical Association. We have made no radical changes in our approach to this problem since that presentation. We still are not completely satisfied with the number of polyps that are being discovered in that portion of the bowel beyond the reach of the 25 cm. sigmoidoscope. The bowel must be completely empty. The examination must be performed by an experienced radiologist. It must be recognized that such examinations are time consuming; they must be performed with special

One of the common errors, which is still noted in our experience, has been the too frequent reliance on radiographic studies of the colon alone for the detection of organic disease of the colon and rectum. To emphasize this problem we conducted sigmoidoscopic examinations in a consecutive series of 150 patients; 15 in this series were found to have benign polyps within reach of the 25 cm. instrument. With this known observation, our radiologists were unable to show the polyps in this area in 10 of these patients. It is imperative that both radiologists and clinicians appreciate this fact and that, when organic disease of the colon and rectum is suspected, a careful sigmoidoscopic examination of the terminal bowel is made before radiographic studies of the colon are performed. In our clinical experience 80% of all benign polyps have been within reach of the usual length sigmoidoscope. In our autopsy experience, however, only 52% were found in this area. Although the average age of the patients in our autopsy series was greater than that of our patients investigated clinically, the figures further emphasize the belief that the accuracy of radiographic examination for detecting colon and rectal polyps is not so satisfactory in many instances as it might be. It is desirable that the usual diagnostic sigmoidoscope become as familiar to students, interns, and examining physicians as the other diagnostic instruments that have been so long in use. The sigmoidoscope should be as familiar to the examining physician as the stethoscope, the vaginal speculum, or the ophthalmoscope.

DIFFERENTIAL DIAGNOSIS

A polyp may be defined as a tumor arising from the mucous membrane of the colon or rectum. There has been no relation, in our experience, between hypertrophied anal papillae, hemorrhoids, or other similar tumors arising from the anal canal, and malignant disease. Polyps may be sessile or pedunculated. The majority are adenomatous in character and should be referred to as ade-

TABLE 1.—Age Incidence of 400 Patients with Benign Mucosal Polyps of Colon and Rectum

Age, Yr.	No. of Patients
1-20.....	9
21-30.....	21
31-40.....	55
41-50.....	81
51-60.....	138
61-70.....	76
Over 70.....	20

attention to detail, and they are expensive in many instances. At the time of the first examination the usual routine barium enema is given. If contrast air studies are indicated, these are performed, usually at a separate examination and after a separate preparation of the colon. It has been only by the judicious use of both techniques in selected cases that we have been able to find the greatest number of polyps.



Fig. 2.—A, polyp of descending colon, demonstrated by usual barium enema technique. B, same polyp demonstrated by contrast air technique.

nomas. Our pathologists report all benign tumors of this type as mucosal polyps without further differentiation. From a clinical standpoint, however, particular attention must be given to the papillary type of adenoma or the so-called villous tumor because of its marked difference in clinical behavior from the usual adenoma. Such tumors tend to recur locally when incompletely removed and resection should be done if possible. In our 400 pa-

tients, 8% were found to have a benign mucosal polyp of the papillary variety. Sunderland and Binkley² have carefully reviewed the subject of papillary adenomas, and our experience closely parallels theirs. The basic difference between papillomas and adenomas is their manner of growth. The adenoma is a tumor of mucosal glands with little, if any, involvement of the surface epithelium. A papilloma is a tumor primarily of the mucosal surface

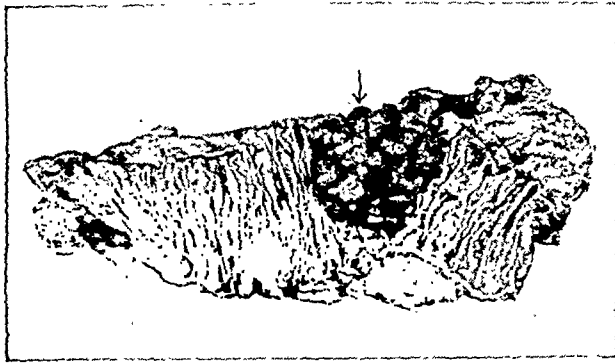


Fig. 3.—Papillary adenoma or villous type of tumor of transverse colon.

epithelium with resulting secondary glandular changes and a resulting tendency for growth by lateral spread (fig. 3). It has been our experience that, although fulguration or excision of the adenoma is rarely followed by a recurrence, after the local treatment of the papillary type of tumor, recurrences are almost inevitable unless some type of resection is performed.

The detection and diagnosis of invasive cancer in either the adenomatous or the papillary type of tumors are well understood by surgeons and pathologists who have had extensive experience with this disease. In our experience, however, it is still not uncommon to have patients referred to us with a diagnosis of low grade malignant disease as a result of biopsy and histological examination when, after a careful review of the original slides and further studies of our own, we cannot agree with such a diagnosis. Tumors in which induration, fixation, firmness, or ulceration are evident to the examining finger and to inspection must always be considered malignant. We have previously reported the histological criteria of malignancy in tumors of this type, and these criteria have withstood the test of time. Warren³ has stated that if we accept three important criteria of malignancy—anaplasia, irregularity of architecture, and invasion—it is necessary that at least two of these three factors be present before a diagnosis is made of malignant disease. It is possible for any of these three criteria to be present without actual malignancy with one exception: definite lymphatic or intravascular invasion always means cancer. Meissner,⁴ Warren's associate, has presented certain additional criteria. He has stated, "Cancer must not be diagnosed on the mere presence of numerous mitoses in the tumor. Benign polyps often show many mitoses. The presence of epithelial cells within vessels

often occurs as an artefact produced by cutting the tissue. For the diagnosis of cancer, the intravascular epithelial cells should at least be associated with a thrombus and preferably be actually invading the vessel wall. . . . All portions of the biopsy must be examined before a negative report is made. Otherwise, a small focus of malignant change may be overlooked. The diagnosis of cancer should never be made on borderline evidence. The pathologist should not feel compelled to diagnose tissue that is inadequate. The clinician and pathologist must both appreciate that repeated biopsies may be necessary before a definite decision can be made." It is imperative, when studies of this nature are to be made, that a review be made of the entire tumor together with its base before malignant disease can definitely and finally be excluded.

In our series of 400 patients, 218 tumors were reported as benign mucosal polyps; in 38 patients the report was benign mucosal polyps with early and localized carcinoma; no pathological studies were made in 151 of these cases. (It has been our policy with the very small, clinically benign mucosal polyps to proceed with fulguration without a biopsy.) Benign mucosal polyps were found associated with carcinoma of the rectum in 50 patients, with carcinoma of the colon (fig. 4) in 19, and with non-specific chronic ulcerative colitis in 10 patients.

TREATMENT

We have followed the practice of fulgurizing those polyps that are obviously benign, usually below the peritoneal reflection, that can easily be reached with the sigmoidoscope. These have been fulgurized in many instances, as noted above, without biopsy. To date we

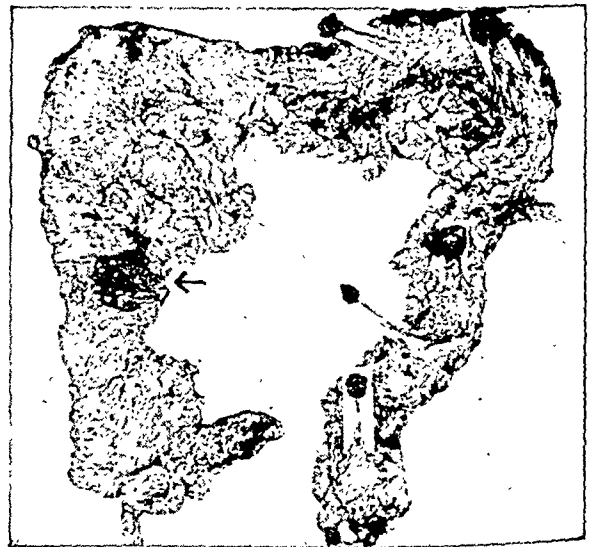


Fig. 4.—Surgically removed specimen of colon showing multiple benign polyps and early adenocarcinoma in ascending colon.

have had no reason to regret this attitude although, as will be further emphasized, it is imperative that these patients be closely observed for an indefinite period of time after such treatment. When a definite pedicle was associated with these polyps, the high-frequency electric snare was used. Ordinarily this type of treatment has been limited to those polyps lying below the peritoneal reflection although, on occasion, when the polyp with its

2. Sunderland, D. A., and Binkley, G. E.: Papillary Adenomas of Large Intestine: Clinical and Morphological Study of 48 Cases, *Cancer* 1: 184-207 (July) 1948.

3. Swinton, N. W., and Warren, S.: Polyps of Colon and Rectum and Their Relation to Malignancy, *J. A. M. A.* 113: 1927-1933 (Nov. 25) 1939.

4. Swinton, N. W.; Hare, H. F., and Meissner, W. A.: Diagnosis of Cancer of Large Bowel, *J. A. M. A.* 140: 463-469 (June 4) 1949.

pedicle and adjacent bowel wall can be clearly visualized, we have not hesitated to remove certain polyps above this area. Obviously, those tumors that have been detected by radiographic studies of the colon and are above the reach of the 25 cm. sigmoidoscope must be removed by the intra-abdominal route (table 2).

One of our principal problems in the treatment of these tumors has been the management of the papillary adenoma, since there is a tendency for these tumors to recur

TABLE 2.—Treatment of 400 Patients with Benign Mucosal Polyps of Colon and Rectum

Treatment	No. of Patients
Fulguration only	230
Snare excision and fulguration.....	44
Surgical excision	34
Colotomy	30
Resection	69
No treatment	4

locally unless some type of resection is performed. Over half of our patients who have had papillary adenomas and who have not had some type of resection have had repeated recurrences, occurring in one patient over a period of 14 years. In three of our patients with papillary adenomas, invasive carcinoma has developed. It has been impossible to predict which of these villous type tumors will ultimately become malignant and which will tend to recur locally. Although we have agreed with Binkley² that, in those tumors that have shown a uniformly benign structure originally and in the earlier recurrences, carcinoma does not tend to develop, our tendency as a result of our experience has been to employ some type of resection for these benign lesions whenever possible. In our entire experience with the fulguration of benign polyps of the rectum, we have only had two instances of perforation. In one of these too much tissue was probably destroyed in a single treatment. In the second instance, perforation occurred after the biopsy of a small, obviously malignant tumor that had been excessively fulgurized in an attempt to control hemorrhage. In both instances immediate resection was successful. It must be noted that, after both biopsy and fulguration of these tumors, hemorrhage can occur and at times require the utmost in experience, skill, and available equipment.

The treatment of those polyps containing localized areas of invasive cancer presents a special problem. It has been our policy in the past that, if it can be demonstrated satisfactorily that the malignant condition has not invaded the pedicle or base of the tumor, that there is no evidence of blood vessel or lymphatic invasion by the cancer, and that the area of malignancy is limited to the periphery of the polyp, complete local excision of the tumor is sufficient. Isolated cases of lymph node involvement have been reported in the literature in cases of this type, but to date this has not occurred in our experience with a series of over 75 cases. It is true that segmental resection of the bowel may be necessary in certain instances for complete histological examination of the polypoid tissue, but we do not agree with those who advocate routine segmental resection for all colon polyps. We definitely believe that, if invasive cancer is found in a polyp and there is

any suggestion that it may have spread beyond the pedicle or into the base, a radical cancer operation should be performed. Polyps, particularly those in the left part of the colon, usually have a long pedicle of normal mucosa. Such polyps can easily be removed by simple colotomy and without bowel resection in most instances. There is general agreement on the treatment of the congenital type of multiple polyposis of the colon. Patients who have this type of polyposis die as a result of malignant disease if their colon and rectum are not removed or all polyps are not destroyed. The oldest patient in our experience lived to 49 years of age before succumbing to cancer. In the past, we have usually treated such patients by surgical removal of the colon and anastomosis of the ileum to the rectum after fulguration of all polypoid tissue in the rectal segment. However, two of our patients have succumbed to malignant disease that developed in the rectal stump. At present we believe that, unless these cases can be followed very closely, the most desirable treatment is removal of both the colon and rectum.

The relation of polypoid disease to chronic ulcerative colitis is receiving increasing attention. It is apparent that cancer of the colon and rectum develops much more commonly in patients who have had chronic ulcerative colitis than in those who do not have this disease. Counsell and Dukes⁵ have recently reported that, in their series, carcinoma of the colon was found in 11% of the surgically removed specimens of chronic ulcerative colitis. Most important, they pointed out that, of those patients who had chronic ulcerative colitis for over 10 years, half of them had associated malignant disease at the time of their surgical treatment. Cattell⁶ has reported from our experience that one in three of our patients who have had chronic ulcerative colitis for over nine years and who have had a colectomy also have had associated cancer. It must be recognized that carcinoma that develops in a patient with chronic ulcerative colitis grows rapidly, metastasizes early, and is malignant to a high degree.

TABLE 3.—Results of Treatment in 400 Patients with Benign Mucosal Polyps of Colon and Rectum

Result	No. of Patients
No recurrence for 5 years or more.....	196
No recurrence for 1 to 5 years.....	150
Subsequent polyps	16*
Subsequent cancer	10*
Death from other causes.....	14
No follow-up	74

* Cases in which polyps or cancer subsequently developed comprised 6% of all cases.

We have attempted to follow 400 patients in our series (table 3) to answer the question: If a patient has a benign mucosal polyp of the rectum or colon and if this polyp is completely destroyed or removed, what are the chances of further polyps or malignant disease developing in these organs? In 6% of the entire series or in 8% of the cases followed, polyps or cancer have developed. Even though the follow-up is incomplete, there is sufficient evidence

5. Counsell, P. B., and Dukes, C. E.: Association of Chronic Ulcerative Colitis and Carcinoma of Rectum and Colon, *Brit. J. Surg.* 39: 485-495 (May) 1952.

6. Cattell, R. B., and Boehme, E. J.: Importance of Malignant Degeneration as Complication of Chronic Ulcerative Colitis, *Gastroenterology* 8: 695-710 (June) 1947.

to indicate that all patients who have had polyps, and most certainly those who have had malignant disease of the colon and rectum, must be followed indefinitely.

Quite a large group of patients come to us for annual complete physical examination. On the basis of our experience to date we do not believe that it is necessary to perform a sigmoidoscopic examination and radiographic study of the colon every year in patients who do not present any colon or rectal symptoms or who have not had any previous organic disease in this area. It is probably adequate to perform such examinations in this group of patients at two year intervals. However, when we have fulgurized polyps without biopsy, it is our policy to give sigmoidoscopic examinations to these patients at the end of six weeks to determine whether the tumor is entirely destroyed and to repeat this examination at the end of three months, again at six months, and annually thereafter. Although we have seen cancer of the colon and

rectum develop without passing through an intermediary polypoid stage, it has been our experience in general that polyps grow relatively slowly.

SUMMARY

1. Data supporting the intimate relationship between benign mucosal polyps of the colon and rectum and cancer are reviewed.
2. The premalignant nature of these tumors is emphasized.
3. Experiences at the Lahey Clinic as to the frequency, methods of detection, differential diagnosis, and treatment of polyps are presented.
4. The importance of the increased use of the sigmoidoscope for the detection of these tumors in all complete physical examinations is stressed.
5. It is suggested that the ideal approach to the treatment of cancer of the colon and rectum is that of prevention. This can be realized by the detection and removal or destruction of these tumors in their premalignant phase.

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UNCOMMON BENIGN LESIONS OF LOWER ESOPHAGUS, DIAPHRAGM, AND CARDIA

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and

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Symptoms occurring from lesions of the lower esophagus and cardia are variable and sometimes difficult to interpret. Patients may believe that they have heart disease, gallstones, cancer of the throat, or duodenal ulcer. Not infrequently, extensive medical studies are carried out to investigate such possibilities before location of the disease process in the esophagus is suspected and proved. Although accurate diagnosis is readily achieved in most cases by careful history and radiological and endoscopic study, any large series of cases will yield a small group of uncommon conditions difficult to diagnose and puzzling to treat. This communication presents six cases with unusual findings.

HEMANGIOMA WITH ULCER IN A FLACCID CARDIA

CASE 1.—A 60-year-old woman had burning, aching, substernal distress of 11 months' duration that was immediately related to food intake. Any hot liquid would cause the distress, and cold liquids had never caused it. She had noticed it with soft foods like mashed potatoes as well as with solid foods like meat. At no time had there been any eructation, regurgitation, or inability to swallow. Her weight had remained constant. By fluoroscopic examination, we saw that the esophagus was wider in the lower fourth, where the barium mixture moved back and forth several times before being expulsively propelled through the cardia into the stomach. A thin collection of the barium mixture was retained just above the cardia, at the upper margin of a tiny diaphragmatic hernia. A gastric diverticulum was seen in the posterior wall of the upper part of the stomach (fig. 1).

At esophagoscopy, a hemangioma, 4 mm. in diameter, was found lying exactly at the junction of the esophagus with the stomach, and in the center of the hemangioma there was a

punctate ulcer. Through a gastroscope, the diverticulum could be visualized, but no other lesion was seen in the stomach. At operation, the hemangioma and ulcer were locally removed. Two 3 mm. mucosal ulcers that had escaped radiological and gastroscopic detection were found high on the lesser curvature of the stomach. They lay at the upper border of the tiny hernia, about 2 cm. superior to the ostium of the diverticulum. They were also locally excised with the diverticulum, and the diaphragmatic hiatus was reconstructed about the cardia to correct herniation. In the six months elapsed since operation, the patient has had no further symptoms.

Recurrent ulceration and scarring may occur in the central portion of any hemangioma subjected to trauma, as is seen in the cutaneous variety located near skin folds or above joints. We have had no previous experience with esophageal hemangioma but were puzzled by the fact that pain was caused by any foods warmer than body temperature but never by cold or iced foods. Such symptoms are contrary to usual observations in lower esophageal inflammatory disease, since nearly all patients with cardiospasm, and many with esophagitis, notice the worst symptoms after taking cold or iced foods. Of course, piping hot liquids will also cause pain in most cases. We have presumed that warm liquids in this case caused dilation of the veins in the hemangioma, with aggravation of symptoms, and that cold foods caused the reverse. We would welcome explanatory comment from others. The two additional ulcers in the gastric mucosa at a flaccid cardia probably contributed to the patient's symptoms, but to an extent impossible to analyze. Except for one patient in whom there was a carcinoma in this region, we have seen no instance in which a small gastric diverticulum arising off the fundus seemed to be of clinical significance.

LOWER ESOPHAGEAL PLAQUE WITH OPEN END VESSEL

CASE 2.—A 65-year-old woman was admitted with a reticulocyte count of 1,500,000 per cubic millimeter, a hemoglobin level of 5 gm. per 100 cc. (photometric method), and a history of frequently recurring melena for five months, together with mild, inconstant, postprandial, high epigastric discomfort. There had been occasional belching but no vomiting. After blood replacement, study with barium showed a small diaphragmatic

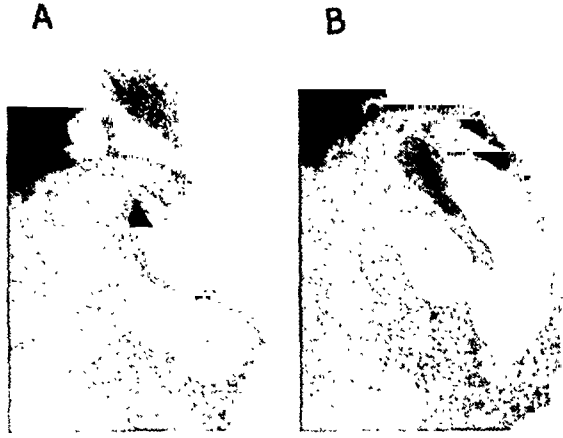


Fig. 1.—Hemangioma with ulceration at lower end of esophagus and also a high gastric diverticulum. *A*, anteroposterior projection. *B*, oblique projection, outlining diverticulum.

hernia of hiatus type, just above which there was a tiny, shallow filling defect. Complete gastrointestinal studies were otherwise normal.

At esophagoscopy, a circular, pale white, avascular, firm, fibrous posterior esophageal wall plaque, 6 mm. in diameter, was found just above the esophagogastric junction. In the center of this white, fibrous plaque, there was a reddish brown, punctate point, 1 mm. in diameter, which had the appearance of the end of a small thrombotic blood vessel. As the inner end of the esophagoscope was brought alongside, the vessel began to spurt and the plaque was seen to crack. Further visibility was blocked by escaping blood.

An operation was performed immediately. The esophageal plaque and the bleeding vessel were locally excised and the diaphragmatic hernia repaired. From this procedure, the patient recovered uneventfully, and, when she was seen a month after discharge, she was in good condition with no symptoms and no anemia. Six months later she was seen by her physician because of congestive failure. A nodular liver and a metastatic lesion in a rib were discovered, and she died shortly thereafter. No autopsy was performed, and the primary source of the malignant disease is not known.

Our presumption in this case is that a lower esophageal ulcer had existed previously, with formation of a fibrous scar during periods of recurrent healing, finally followed by erosion into a centrally located vessel within the plaque. The condition would seem almost identical to that of an eroded gastroduodenal branch in a chronic duodenal ulcer base, which one so frequently encounters as a cause of upper gastrointestinal hemorrhage in older ulcer patients. However, we have not seen these conditions in the lower part of the esophagus.

DIAPHRAGMATIC HERNIA SIMULATING CORONARY THROMBOSIS

CASE 3.—A 76-year-old woman had been hospitalized numerous times in the preceding five years with repeated diagnoses of congestive heart failure and coronary thrombosis, after recurring attacks of dyspnea and substernal pressure sensations.

Frequently, she would become ashen gray in color. Oxygen was often required. Electrocardiographic tracings had been interpreted as showing signs of myocardial damage and possible coronary infarction. Her history, however, had never been typical of organic heart disease. The symptoms had always appeared shortly after meals. Although substernal pressure was a prominent complaint, she had never had any actual pain in the chest, nor had there been any radiation into the arms. Walking about or doing any exercise immediately after a meal might cause extreme dyspnea, and sometimes cyanosis, but, four to five hours later, with stomach empty, she could do her housework. There had been no orthopnea.

The patient was obese. The blood pressure was 170/90 mm. Hg. There was a basal soft blowing systolic murmur with a split second sound. An electrocardiogram showed the heart to be regular with rate 70 and rare auricular extrasystoles. The PR interval was 0.16 second, with slurred T_1 , upright T_2 and T_3 , and lowered TV_1 through V_6 . The interpretation was slight left ventricular strain.

There was a huge paraesophageal diaphragmatic hernia. This was repaired, and she was relieved of the symptoms, indicating that they were caused by her large diaphragmatic hernia and food-filled stomach rather than by organic heart disease.

Almost any surgeon with substantial experience in treating diaphragmatic hernia could refer to one or more such cases in his files. On the other hand, this syndrome occurs so seldom in the clinical practice of physicians that it sometimes is forgotten as a source of alarming but peculiar symptoms simulating serious organic heart disease. If not suspected, the diagnosis may be missed because of incomplete symptom analysis. Inability to see the shadow of a stomach herniated into the posterior mediastinum on a plain posteroanterior roentgenogram, often taken as a portable film with the patient in semi-recumbent position because of presumed heart failure, is a second cause of erroneous diagnosis. A third cause is an abnormal electrocardiographic tracing.

PEPTIC ULCER IN A DIAPHRAGMATIC HERNIA

CASE 4.—A 63-year-old man was hospitalized with complaints of hematemesis and tarry stools of three days' duration. The relevant history began with hematemesis four years previ-

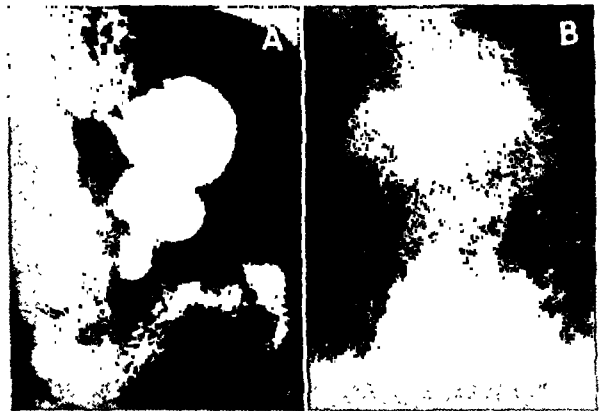


Fig. 2.—Large bleeding peptic ulcer in fundus of a stomach herniated through the left diaphragm. *A*, oblique view. *B*, magnification of ulcer crater.

ously. At that time, he was hospitalized, told that he had a duodenal ulcer, and put on a medical regimen. He was asymptomatic until two months previous to admission, when epigastric pain developed that could be temporarily relieved by alkalis. Three days before the patient was admitted, the melena and hematemesis started again. When he was admitted, the

hematocrit was 25% and hemoglobin 8.5 gm. per 100 cc. (photometric method). An upper gastrointestinal tract roentgen examination revealed a hiatus hernia, 9 cm. in diameter, containing an ulcer in the lesser curvature of the herniated portion of the stomach measuring 3.5 by 2 cm. (fig. 2).

Over a period of 72 hours, he was given transfusions of 10 pt. (5,000 cc.) of blood, but he did not stop bleeding. Emergency proximal gastrectomy with esophagogastrostomy and repair of the hiatus hernia was done. His convalescence was uncomplicated, and there has been no further bleeding or pain.

Emergency subtotal gastrectomy has slowly won a well-deserved place in the treatment of massive, persistent hemorrhage from duodenal ulcer. Emergency transthoracic gastrectomy for bleeding ulcer at the cardia is a rarely required procedure, but it was lifesaving for



Fig. 3.—Periesophageal granuloma developed about a tiny diverticulum and causing esophageal obstruction at the cardia. A, spot films. B, oblique view.

this patient. Although not often of exsanguinating proportions, hemorrhage from an ulcer lying within a diaphragmatic hernia is sometimes recurrent and massive. The diagnosis was made by means of an upper gastrointestinal tract examination carried out while there was active bleeding. We believe some lives are lost because such study is withheld when the source of hemorrhage is not already known. To be sure, the most competent of radiologists may not be able to locate the source under such circumstances, even when it subsequently is proved to be from a posterior duodenal ulcer. But oftener it will be located, and the localization will be of inestimable help to the surgeon forced to do an emergency operation for control of upper gastrointestinal tract hemorrhage.

Consider what might have happened without radiological study in the presence of active hemorrhage in the case cited. The patient had been told previously that he had a duodenal ulcer, but there was no sign of such on the roentgenograms or at operation. Basing the approach on statistical chances, with this history, and in the absence of localization by current study, we probably would have done a resection of the distal part of the stomach, pylorus, and proximal duodenum, leaving the intrathoracic gastric ulcer in situ to continue bleeding. The case further illustrates the help to be gained by conducting a portion of the fluoroscopic examination with the patient in the Trendelenburg position.

ESOPHAGEAL GRANULOMA SIMULATING CARCINOMA

CASE 5.—A 44-year-old man was admitted complaining of epigastric and substernal pain of two weeks' duration that was burning in character and occasionally radiated to his back. History revealed that when 5 years old he had swallowed some kind of cleaning fluid used in cleansing of silver. He was in the hospital for an indeterminate period of time and was apparently quite ill. For the succeeding 10 years he had difficulty in swallowing solid foods, but this factor gradually improved except for a feeling of epigastric fullness occurring anywhere from daily to once a month. In 1942, while in the Army, he had repeated roentgen examinations and several series of upper gastrointestinal tests and was told there was nothing wrong except gastritis. Five years previous to admission, he had again noticed epigastric distress occurring immediately after eating, lasting for several hours, and unresponsive to any type of treatment. It then spontaneously improved. Two weeks before admission, dull, chronic discomfort had become more intense and developed into fairly severe pain. Difficulty in swallowing reappeared, and thereafter, until time of admission, he lost over a pound a day, for a total weight loss of 15 lb. (6.8 kg.).

When he was admitted, a series of upper gastrointestinal studies showed dilatation of the mid esophagus with stricture formation in the distal third, the lesion being apparently intramural and extramucosal. A narrowed channel with an ulcerated area, measuring 1.5 cm., was seen on the right posterior wall of the lower esophagus (fig. 3). This finding was confirmed by esophagoscopy. The pathological diagnosis of the biopsy specimen was chronic inflammation.

At operation, a mass was found, involving the distal third of the esophagus and the upper portion of the stomach and measuring 8 by 4 cm. This lesion was resected, and an esophagogastrostomy was done at about the level of the hilus of the lung. Pathological examination showed an inflamed, tiny diverticulum of the lower esophagus with chronic, suppurative, granulomatous periesophagitis.

Although diverticulitis, actinomycosis, and esophageal ulcer were considered in the differential diagnosis, we believed before the operation that the probable diagnosis was carcinoma. At completion of the operative procedure, we felt that the pathological process had been successfully removed but were uncertain as to its morphology. We suppose the intramural granuloma may have developed from infection in a tiny traction diverticulum, the latter having occurred subsequent to ingestion of a chemical in childhood. However, it is a type of intramural extramucosal lesion concerning which we have had no previous knowledge or experience, and which we have been unable to find described.

HUGE ULCER AT CARDIA INVADING PANCREAS

CASE 6.—A 77-year-old woman had been examined 14 months previously because of weight loss and epigastric pain. A large gastric ulcer was found on the lesser curvature of the upper third of the stomach. A regimen of medical therapy for the ulcer was followed by temporary symptomatic improve-

ment. For the preceding three months, she had been failing steadily, with lack of appetite, progressive weight loss, increasing constipation, and upper lumbar back pain.

On admission, she was emaciated, with weight of 80 lb. (36.3 kg.). All viscera were palpable through the thin abdominal wall. By roentgenologic study, a large fixed irregular mass and ulcer were found in the fundus of the stomach, extending along the posterior wall on the lesser curvature side (fig. 4).

The clinical impression was that the patient had carcinoma of the stomach with extension and nodal metastases, and exploration was done only because of faint hope that this impression was wrong. A total gastrectomy was done on Jan. 30, 1951. The spleen and distal half of the pancreas into which the lesion had penetrated were also removed. She withstood this procedure surprisingly well. Pathological examination showed the lesion to be a huge peptic ulcer without malignant degeneration. The patient is still alive, eats a normal diet, and is doing her own housework.

This is the third case, over a period of six years, in which we have done a total gastrectomy for what appeared to be advanced carcinoma and had the lesion subsequently proved benign by microscopic examination. In the same period, we have also had two cases in which

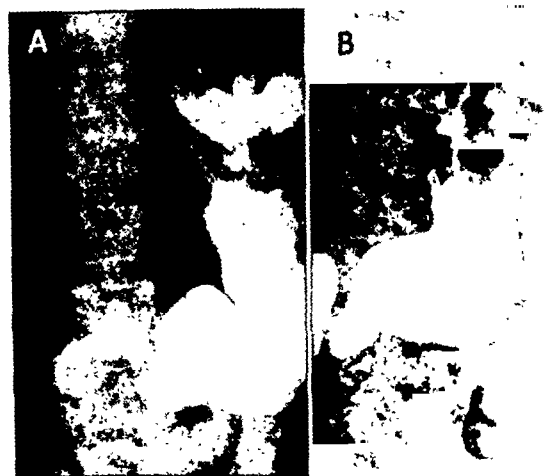


Fig. 4.—Huge high posterior wall gastric ulcer invading the pancreas and found to be benign and resectable. A, oblique projection of stomach. B, tangential projection of ulcer shadow.

cancer was found by microscopic examination of serial sections through the base of small, locally resected, high lesions of the lesser curvature that appeared grossly benign at the time of operation. One of the two lesions was considered benign after study of a frozen section.

That the three patients in whom total resection was performed for ulcer have done well does not change the fact that subtotal resection might have been done more easily, with less risk of fatality and morbidity and with better prospect of subsequent gastrointestinal function satisfactory to the patient. Also, it is poor comfort to the surgeon who has locally removed a small cancer of the lesser curvature that looked like an ulcer to remember that he would have been right in using this therapy for almost all such cases. It is disturbing to the patient to be told a few days later that he must now have another more radical operation that offers less chance for cure than wide resection performed initially. The dilemma that we occasionally face is that of overextensive or too radical surgery for the benign ulcer and improper or inadequate surgery for the carcinoma.

Aside from mechanical leakage or recurrence, two types of late complications may mar the course of a patient who has had a proximal gastrectomy and esophagogastrostomy or total gastrectomy and esophagojejunostomy. These are stricture and severe esophagitis. There are three causes for these complications: tension, failure to establish mucosa-to-mucosa healing, and reflux of secretions. Technical changes and improvements have practically eliminated stricture and severe esophagitis as complications. Esophagogastrostomies function better if created through the cut end, or a separate circular opening, rather than through a slit made in the wall of the stomach. In theory, an enteroenterostomy below an esophagojejunostomy will prevent esophagitis caused by the bathing of the esophagus with duodenojejunal secretions. The theory is unsound in view of the physiological fact that intestinal secretions will always flow along the bowel lumen, if it is unobstructed, rather than through a bypass. A Roux Y-formed anastomosis is the physiologically sound method of doing an esophagojejunostomy and jejunojejunostomy, in our opinion.

SUMMARY

A variety of infrequent pathological processes occurring about the lower esophagus, diaphragm, and cardia are described. One of these is a lower esophageal hemangioma with a central ulcer. Recurrent severe blood loss from a partially thrombosed vessel in a fibrotic lower esophageal plaque, diaphragmatic hernia masquerading as coronary heart disease, and exsanguinating hemorrhage from a peptic ulcer in the herniated fundus are discussed in brief case reports. A rare example of periesophageal granuloma is described, and a huge invasive fundal ulcer causing obstruction and pain and mistaken for malignant disease is reported and analyzed. Diagnosis and treatment of these conditions are recorded. Observations are included on methods of preventing esophagitis as a postoperative complication.

1152 Beacon St. (Dr. Adams).

Golden Jubilee of Discovery of Sleeping Sickness.—In a paper dated April 5, 1903 (Entebbe, Uganda) received by the Royal Society on May 8, 1903, Castellani announced the discovery of trypanosomes in the cerebro-spinal fluid taken during life from natives suffering from sleeping sickness. Up to this time, it was not suspected that sleeping sickness was a trypanosome infection. Castellani observed them on Nov. 12, 1902 but did not make any publication on the subject until after the arrival of Bruce and Nabarro on March 16, 1903. Bruce and Nabarro then showed that the blood, as well as the cerebro-spinal fluid of sleeping sickness cases contained trypanosomes and that so-called cases of trypanosoma fever described by Forde (1902) in West Africa were cases of sleeping sickness in the early stage. In 1904, Mott suggested the examination of the contents of lymphatic glands for trypanosomes. Greig and Gray (1904) stated that trypanosomes were practically always present in the glands of an infected person. They examined sixty-two patients at various stages and found trypanosomes in every one. . . . To Bruce (1903) and his colleagues . . . we owe the demonstration of the fact that the trypanosomes are transmitted from the sick to the healthy by a species of tsetse fly, *Glossina palpalis*.—M. A. Soltys, Golden Jubilee of the Discovery of Sleeping Sickness in East Africa, *East African Medical Journal*, September, 1953.

PENETRATING CRANIOCEREBRAL TRAUMA

OBSERVATIONS IN KOREAN WAR

Arnold M. Meirowsky, M.D., Nashville, Tenn.

In the spring offensive in 1951 in Korea, a 19-year-old U. S. Marine corporal was struck in the back of the head and neck by an unidentified missile. On admission to the First Neurosurgical Detachment he was comatose and did not give any signs of recognition or response. Widely dilated, staring pupils, which did react to light, and fixation of the eyes in left inferior conjugate deviation gave him an almost lifeless appearance. His neck was hyperextended. His legs were flaccid and motionless. Deep tendon reflexes and plantar responses could not be elicited in the lower extremities. There were a few purposeless movements of the left arm and irregular tonic contractions of the right arm. The blood pressure was 140/90 mm. Hg. The pulse was thready and irregular; the rate was 120 per minute. Respiratory excursions were shallow and irregular; the rate was 52 per minute. Examination of the head revealed a huge, gaping, and grossly contaminated laceration reaching from theinion to the midportion of the neck. After a 24 hour period during which oxygen was administered and whole blood transfusions were given, the vital signs stabilized except for the respiratory rate that remained at 52 per minute. Neurological signs were suggestive of severe compression of brain stem and mesencephalon with possible damage to the posterior third of the superior sagittal sinus. For that reason operative intervention was decided on, despite the seemingly grave prognosis. At operation, extensive comminution and depression of the occipital and suboccipital bones were encountered. A large bone fragment had torn the torcular Herophili. The tear extended into the superior longitudinal sinus, which was gaping, and into both transverse sinuses. The lacerated portions of the venous sinuses and the torcular were thrombosed. Repair was accomplished with absorbable gelatin sponges (Gelfoam). Because of the precarious condition of the patient, resection of the cerebellar hemisphere was postponed for a second procedure.

Extraocular movements returned four hours after operation. There was some recovery of motor power in the right leg and in both arms within four days, during which time the patient began to respond but seemed to be blind. After one week, he was fully oriented. In a second operation, a subtotal resection of the right, and a partial resection of the left, cerebellar hemisphere was performed. The patient continued to improve and started walking in a walker three weeks after being wounded. At the time of his return to the States, he still had considerable motor weakness affecting the right arm and left leg. Vision had remained poor, but he could count fingers with either eye at a distance of 4 ft. (121.92 cm.). Two years later this patient was reexamined by Dr.

Charles E. Brackett, Division of Neurosurgery, University of Kansas, Medical Center, Kansas City, Kan. Dr. Brackett said, "The patient is in excellent health at the present time. He is employed as mimeograph operator. He walks with no limp and has noted only slight clumsiness of the right hand. He is not able to see well enough to read print. However, his vision is serviceable for getting about. He is completely free of headaches, dizziness, or any other complaints referable to the central nervous system. His gait is normal except for slightly decreased associated movements of right arm. Station is normal. Romberg sign is not elicited. Succession movements are slightly diminished in right hand. There is slight hesitancy in finger to nose test on the right side. Other cerebellar tests are normal. There is reduced sensation to all stimuli in left leg below groin, but no evidence of muscle weakness. Reflexes are slightly hyperactive in arms, normally active in knees, and hyperactive in ankles, but equal bilaterally. No abnormal reflexes. There is right homonymous hemianopia with macular sparing and a moderate degree of optic atrophy bilaterally. There is no venous engorgement. Extraocular movements are normal. The defect over the torcular is smooth. Some pulsation is noted in the wound that appears to be entirely well healed. Electroencephalogram is normal."

It used to be the general consensus that once a man was shot in the head all powers would be lost except those of vegetation. The preceding story points to the fallacy of such a conclusion, which could readily lead to a "do nothing" policy. The teachings of Harvey Cushing and of some of the most outstanding neurosurgeons in the European and African theaters in World War II have been confirmed again in the Korean campaign. Earliest possible definitive neurosurgical intervention is the single most pertinent factor in the successful treatment of penetrating craniocerebral trauma. Simultaneously available and carefully applied specialized nursing care will prevent many of the complications that may kill outright a man with a penetrating wound of the brain.

RELIEF FROM HEMATOMA

Rapid relief from the damaging effect of hematoma associated with a missile wound of the brain is an important factor in the reduction of mortality. The story of a 25-year-old Canadian infantryman may serve to illustrate that point. He was wounded in action by a booby trap explosion on Dec. 3, 1951. He sustained a penetrating wound of the left temporal area and was taken to the Third Neurosurgical Detachment by helicopter directly from the Battalion Aid Station. On admission he appeared restless and semistuporous but could be roused. He showed moderate weakness of right arm and leg, but there was no inequality of the reflexes. Examination of the head revealed a small circular wound of entry in the left temporal area. The blood pressure was 122/64 mm. Hg. The pulse rate was 68 per minute. The respiratory

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Presented at the Postgraduate Course on Trauma of the Central Nervous System at the 38th Annual Clinical Congress of the American College of Surgeons, Sept. 22-26, 1952, New York.

rate was 16 per minute. Because of clinical evidence of a rapidly expanding intracranial lesion in the presence of a low velocity wound, it was felt that the man might have an intracranial hematoma, and he was, therefore, given operative priority. The missile tract was found to contain a tremendously large, intracerebral hematoma. There was also a moderately large subdural hematoma covering the greater portion of the convexity of the left frontal and temporal lobes. Inspection of the missile tract after removal of the clot revealed numerous comminuted pieces of bone within the tract; these pieces were removed. There was also a tear in the temporal horn of the left lateral ventricle. Twenty-three days after being wounded, this man was returned to Canada without any neurological deficit.

Through the courtesy of Brig. Gen. W. L. Coke, Director General, Medical Services, Department of National Defense, Canadian Army, I received follow-up notes on this patient. He does not have any neurological deficit. The electroencephalogram shows evidence of slight residual cerebral damage in the left temporal region, spreading at times to the left parieto-occipital region. In a personal letter to me, written 19 months after he was wounded, the patient related that he does not have any headaches or other subjective complaints. He has full use of arms and legs and is employed.

Statistics obtained in rear installations never suggested the frequency with which hematomas occur in association with penetrating wounds of the brain. In a forward area almost half of these casualties proved to have intracranial hematomas, many of which were expanding lesions not compatible with life unless drained without delay.

USE OF ANTIBIOTICS

The tantamount availability of antibiotics in the Korean campaign has been of importance in the reduction of meningocerebral infection. Their real value lies in the combination of antibiotics with early and radical surgery. Partial débridement, retained bone fragments, and retained necrotic tissue and clots may readily give rise to infection despite the use of antibiotics. The history of a 20-year-old American private illustrates this point. He sustained a penetrating wound of the left occipital area during the early days of the Korean campaign. Débridement and closure were performed in an unidentified installation. It was indicated on the patient's record that he had received antibiotics since the day on which he had been wounded. He remained disoriented, was considered to be psychotic, and was admitted to a psychiatric center. There meningitis developed but responded to chlortetracycline (Aureomycin). Two subsequent bouts of meningitis were also treated with chlortetracycline. The patient was seen in neurosurgical consultation after recovering from his last attack of meningitis. The patient appeared to be rational, well oriented, and free from any evidence of systemic infection. Except for a homonymous hemianopia, there was no neurological deficit. Skull films revealed the presence of 11 comminuted bone fragments within the left occipital lobe. At craniotomy, necrotic and partially liquefied brain tissue and numerous retained pieces of bone were encountered. One of these fragments had pierced the wall of the posterior horn of the left lateral ventricle and lay partially within the ventricle. This

piece of bone was surrounded by a small distinct abscess, which fully explained the intermittent bouts of meningitis. The abscess was excised together with the posterior horn of the left lateral ventricle. The left occipital lobe was resected and primary closure performed. The patient made an uneventful recovery and had no recurrence of meningitis.

MANAGEMENT OF SCALP WOUNDS

Harvey Cushing was the first to stress the importance of careful surgical management of every scalp wound. On the basis of his experiences in World War I, he related the high incidence of cortical abnormality in the presence of scalp wounds without bone damage. The tangential bullet wounds of the scalp are but one striking example for this type of abnormality.

This is well illustrated by the story of a 20-year-old Marine sergeant who sustained a superficial scalp laceration on the left side of the forehead in the Okinawa campaign. The laceration was caused by a tangential bullet wound. He had not been unconscious and was admitted to the minor surgery section of an advanced field hospital. The scalp laceration was not débrided, but simply dusted with sulfonamide powder and pulled together with an adhesive strip. Twenty-four hours later the patient began to vomit, complained of severe headache, and became increasingly drowsy. When seen the next day, he could barely be aroused from his stupor. He understood questions, but answered hesitantly and with incorrect and slurred pronunciation. The scalp laceration in the left frontal area was grossly infected. The left pupil was dilated. There was bilateral papilledema and right hemiparesis. Roentgenograms did not show a fracture. The necessary operation, which was made hazardous by the grossly infected scalp laceration, revealed an extradural and a subdural hematoma over the cerebral hemisphere. The craniotomy wound healed in four days; the scalp laceration in four weeks. Radical débridement and layer closure of the wound initially would have prevented the threat of meningitis and brain abscess.

Specific techniques may have to be employed in the treatment of individual brain wounds. The minute details of their general management are essentially the same. Application of these principles is oftener than not the decisive factor in the morbidity and mortality.

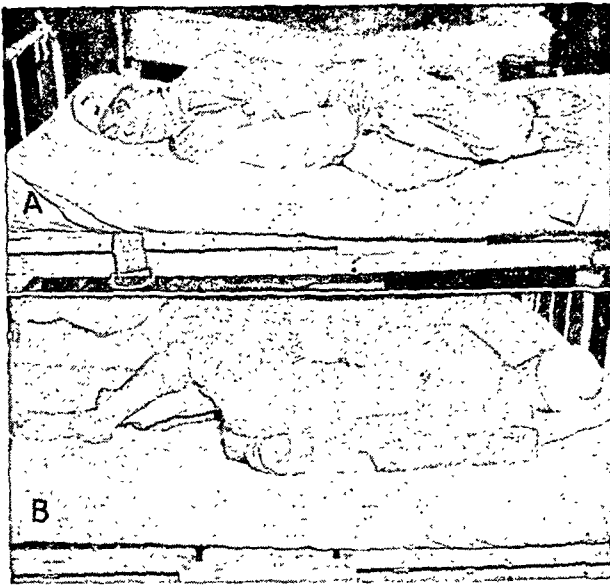
GENERAL MEASURES

Initial Examination.—Inspection of the head and a brief neurological examination will suffice to rule out a simple laceration of the scalp without associated intracranial damage. The neurological examination should include a check of the pupils, the visual fields by confrontation, the function of the seventh cranial nerve, motor power, and reflexes.

Roentgenograms.—Roentgenograms should be available prior to craniectomy. These films will give information about the bony defect, number and location of indriven bone fragments, and location of any metallic fragments. Retained bone fragments are the commonest single cause of post-traumatic brain abscess. Postoperative skull films should be made to rule out the retention of isolated bone fragments. If the pineal body is calcified, its position might reveal a subdural or extradural clot that

is not infrequently associated with a penetrating wound of the brain. In the postoperative films, determination of its position will serve to reveal, or to rule out, the presence of a secondary hematoma.

Initial Wound Care.—Initially a wide area about the site of penetration should be shaved and the scalp thoroughly cleaned. A dressing consisting of dry gauze squares and a bandage should then be applied. The use of adhesive bandage on the head can usually be avoided. In fungating wounds, with brain tissue presenting at the surface of the scalp, gauze fluffs may be used, and care should be taken not to apply the bandage too tightly. Débridement of the superficial layers of the scalp, an integral part of definitive surgery, is deferred until such can be effected. Prior to craniectomy, the entire head is shaved and well washed with soap and water for 10 minutes.



To prevent aspiration of mucus and vomitus and to facilitate drainage, comatose patient should be placed on his side with hips and knees flexed, the dependent arm behind the back, the chest supported by a blanket roll, and the head slightly anteflexed but aligned with the spine; A, the position from in front and, B, from behind.

Coma.—Because of existing intracranial tension, patients with penetrating craniocerebral trauma exhibit various degrees of depression of mental alertness. An expanding intracranial lesion may make a patient stupor, semicomatose, or comatose. Other signs and symptoms that may be seen are restlessness, nausea, vomiting, incontinence, bradycardia, hypertension, depression, and irregularity of respiratory rate. In the preoperative and postoperative management of the comatose patient, the following considerations are of vital importance: 1. Free air passages must be maintained. Mechanical obstruction of the air passages is a common cause of early death in the presence of coma. Such obstruction can be overcome and prevented by frequent intratracheal suction and by positioning of the patient. Intratracheal suction will rid the airways of mucus plugs. More important yet is the proper positioning of the comatose patient; this is designed to facilitate drainage and to prevent aspiration of mucus and vomitus. It is inadvisable to keep a comatose patient flat on his back. The most effective position consists of placing the patient on his side with hips and

knees flexed, the dependent arm behind the back, the chest supported by a blanket roll, and the head slightly anteflexed but aligned with the spine (see figure). In such a position, mucus and vomitus cannot be aspirated into the bronchial tree. In order to oxygenate each lung to an equal extent, the patient must be turned from right to left coma position at least every two hours. 2. Blood should be replaced and fluid maintained. Whole blood should be administered intravenously whenever the red blood cell count is below 4 million and the hemoglobin level below 14 gm. The patient should be maintained in a normal state of hydration. An average of 2,500 cc. of fluid every 24 hours is usually adequate. In the event that this fluid has to be administered intravenously, sodium chloride solution should not be used in more than 1,000 cc. of the 24 hour total. 3. Urinary output should be maintained. Many comatose patients are incontinent for urine. A certain number of patients with craniocerebral trauma, however, may have urinary retention for which all of them must be examined. If it is present, catheterization is in order and should be repeated every eight hours. Restlessness, though commonly caused by an expanding intracranial lesion, may be due to bladder distention in the unconscious patient.

A practical method of caring for the incontinent patient was first used during the Okinawa campaign and has again proved its expedience in the Korean War. The patient is fitted with a condom, the tip of which is attached to a tube leading into a bottle on the floor. This prevents the soiling of blankets and sheets and protects the patient's skin from exposure to urine.

Other measures are important in the management of prolonged coma. Special skin care and frequent turning are necessary to prevent decubital ulcers. Spontaneous bowel movements should be prevented by regular enemas since straining may lead to secondary intracranial hemorrhage. Oxygen should be administered in the presence of cyanosis. False teeth should be removed. A padded tongue depressor should be attached to the patient's bed so as to be available in case of a seizure.

Antibiotics and Chemotherapy.—Prophylactic administration of 600,000 units of penicillin and 0.5 gm. streptomycin twice daily to every patient with penetrating craniocerebral trauma is advisable. Such antibiotics as chlortetracycline, chloramphenicol (Chloromycetin), and oxytetracycline (Terramycin) might well be held in reserve for the treatment of specific infections.

Sedatives and Analgesics.—The use of sedatives and analgesics in the presence of craniocerebral trauma is contraindicated for three reasons: 1. Those agents that are sufficiently potent to produce sedation and to relieve pain have a tendency to interfere with intracranial dynamics and to depress respiration. 2. All sedatives and analgesics have a masking effect. Any one of them may impede the establishment of indications for neurosurgical intervention. 3. The narcotic effects of these drugs may delay early surgery and may thus contribute to the degree of irreparable loss of function. In depriving the patient temporarily of rest and of relief from pain, it should be understood that restlessness and irrationalism are the direct sequelae of the expansion of a space-occupying intracranial lesion. This condition can be relieved only by

surgical intervention. Sedatives may begin a vicious circle of increasing the pressure by deepening the coma and of increasing rather than relieving restlessness. Increased intracranial pressure also depresses the respiratory rate. Morphine, for instance, has a similar effect on the respiratory rate that may be embarrassed catastrophically by the combination of the two factors. The irrational, stuporous, or comatose patient is not sufficiently aware of pain to require relief. The conscious patient with penetrating craniocerebral trauma who complains of headache should be reassured and told why his headache cannot be relieved until the necessary surgery has been performed.

SPECIAL MEASURES

Scalp Laceration.—The devastating sequelae of improperly treated scalp lacerations necessitate rigid adherence to neurosurgical operative methods. Secondary infection of a scalp laceration may lead to subgaleal abscess, to osteomyelitis, and to intracranial infection. Immediate débridement and primary closure of a scalp laceration are also necessary because of the possibility of delayed appearance of a neurological deficit, necessitating neurosurgical intervention. An expedient method of surgical repair of a scalp laceration includes (a) shave wide area surrounding laceration, (b) cleanse skin surrounding laceration with soap and water for five minutes, (c) prepare skin surrounding laceration with two coats of thimerosal and two coats of alcohol, (d) drape with sterile towels, (e) excise entire skin edge with scalpel, (f) resect all layers of the scalp within the exposed area, including the periosteum, (g) irrigate wound thoroughly with warm sodium chloride solution, (h) close galea with interrupted sutures of 00 nonabsorbable surgical suture, (i) close skin without drainage with interrupted sutures of 0000 nonabsorbable surgical suture, (j) apply gauze dressing with collodion, and (k) remove skin sutures after 48 to 72 hours.

Compound Fracture of the Skull.—Compound linear fractures without depression, in the absence of a neurological deficit suggesting intracranial damage, may be treated surgically like a scalp laceration. Compound fractures of the base of the skull, as evidenced by a cerebrospinal fluid fistula, may be treated conservatively for approximately 10 days, as long as antibiotics are administered prophylactically. If a fistula does not close spontaneously by that time, surgical closure must be performed. The intradural approach with facia closure of the dural defect is the method of choice. Compound fractures of the vault require immediate craniectomy with débridement of the scalp as previously described and with removal of all depressed and comminuted bone fragments. The dura is opened routinely so as not to overlook the commonly associated subdural hematoma or hydroma or an intracerebral hematoma. The dura is then closed with interrupted sutures of 0000 nonabsorbable surgical suture. The scalp is closed by layers with interrupted sutures of 00 nonabsorbable surgical suture for the galea and 0000 for the skin. No drain is used.

Penetrating Wounds of the Brain.—This group includes all compound craniocerebral injuries with dural penetration. Represented in it are unilateral and bilateral injuries and tangential wounds, as well as through and

through wounds. They may be complicated by a ventricular tear, by laceration of a major blood sinus, or by involvement of an air sinus. As long as definitive neurosurgery can be done early and adequately, even the transventricular wounds and those involving major blood sinus have a high recovery rate. Discussion of the technical details involved in the operative management of the variations of penetrating craniocerebral trauma does not come within the scope of this paper. Their successful treatment consists of early definitive neurosurgical intervention, followed by alert, careful postoperative care. Repair of the bony defect by tantalum cranioplasty should not be done until six months have elapsed. Whenever the wound has been infected at one time or the other, tantalum cranioplasty should be postponed for 12 months.

KOREAN WAR EXPERIENCE

The ultimate goal in the treatment of casualties with wounds of the brain is restoration of the greatest possible degree of function and rehabilitation. The achievement of this goal rests with the availability of earliest possible definitive surgical treatment and simultaneously applied specialized nursing care. Recognizing this, the Army Medical Corps used, in the Korean War, mobile neurosurgical teams that were attached to Mobile Army Surgical Hospitals, functioning at division level. Casualties reached these teams by helicopter directly from the Battalion Aid Station within hours after being wounded. The teams were sufficiently staffed and equipped to perform definitive neurosurgery on all casualties with penetrating wounds of the brain and to render simultaneously the special nursing care that is often the key to success.

While the rate of meningocerebral infection following missile wounds of the brain was 41% during the initial phase of the Korean War, that rate dropped to below 1% with the employment of mobile teams at division level. In the initial phase of the Korean War when neurosurgical casualties had to be flown to Tokyo for definitive care, only 7% of all casualties with missile wounds of the brain had clinically significant intracranial hematomas. That figure rose to 28% when neurosurgical casualties were cared for within 24 hours at a rear installation in Korea. Of patients with missile wounds of the brain admitted during a 10 month period to a mobile neurosurgical team in a forward area, 48.6% of the wounds proved to be complicated by the presence of an intracranial hematoma. We surmise that the realization of earliest possible neurosurgical intervention in the Korean War saved the lives of men who could not have stood the trip back to a rear installation.

The employment of helicopters for the rapid and smooth transport of these casualties made the work of mobile neurosurgical teams possible, and the helicopter pilots deserve much credit for their great contribution. The teams themselves were staffed by a small group of very young neurosurgeons who interrupted their resident training to serve in the armed forces. These young surgeons set a record that speaks for itself. They and a small group of Army nurses and enlisted surgical technicians are responsible for the realization and for the success of the Army Medical Corps' new program in behalf of neurosurgical casualties:

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SYNDROME SIMULATING COLLAGEN DISEASE CAUSED BY HYDRALAZINE (APRESOLINE)

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and

Henry A. Schroeder, M.D., St. Louis

The continued, combined oral administration of hexamethonium chloride and hydralazine hydrochloride (called hyphex therapy) in adequate doses effectively controls severe and malignant forms of hypertension.¹ Hydralazine (Apresoline) hydrochloride is a highly reactive compound that combines with carbonyl and sulphydryl radicals and has a strong affinity for certain heavy metal ions.² Late reactions to this active chemical agent were, therefore, predicted³; these have taken the form of collagen disease in all stages of severity.⁴ Others have also described the same phenomena,⁵ and one case of pancytopenia has been reported.⁶

Of 211 patients receiving both drugs for 9 to 30 months, definite symptoms due to delayed toxic effects of hydralazine developed in 17 (8.1%). The preceding period of combined medication (hyphex) varied from 2 to 22 months, and the total ingestion of the offending drug ranged from 25 to 350 gm. (table 1). At its mildest the syndrome consisted of arthralgia and laboratory findings usually associated with hepatic abnormality (case 1). In severer forms it simulated acute rheumatoid arthritis (case 2). The fully developed picture was indistinguishable from disseminated lupus erythematosus (case 3).

Normal or nearly normal blood pressure always accompanied and frequently antedated the appearance of the clinical picture (table 1); less well-controlled hypertensive patients were not affected. Arthritis was present in all patients and was usually both early and prominent. It has varied from vague generalized arthralgia to a single hot, red, swollen, tender joint; distal portions of the upper extremities were most consistently involved. Although there was frequently no other evidence of a damaged

liver, such as hepatomegaly, jaundice, or poor excretion of sulfobromophthalein, abnormal cephalin-cholesterol flocculation and thymol turbidity of the serum were noted every time a search was made. These tests may indicate an alteration in plasma protein rather than hepatic involvement.

The 10 next most frequent abnormal findings in order of occurrence were: pyrexia of over 37.5 C in 11 of 17 cases; microcytic or normocytic anemia of 4 million erythrocytes per cubic millimeter or less in 9 of 14; sedimentation rate of 20 mm. per hour or more in 8 of 13; either gross or microscopic hematuria in 8 of 14; skin rashes of various types in 8 of 16; adenopathy in 5 of 16; albuminuria of 1 to 3 + in 4 of 13; hyperglobulinemia of 3 gm. per 100 ml. or more in 4 of 13; leukopenia of less than 3,500 cells per cubic millimeter in 4 of 14; and splenomegaly in 3 of 16 (table 2).

Although lupus erythematosus (LE) cells were found in the blood of only one patient (case 3), in two other patients the disease closely simulated disseminated lupus erythematosus. In all three, therapy with hydralazine was continued without reduction in dosage after the appearance of arthritis. Two patients (cases 16 and 17) whose cases have already been reported⁴ were the first in whom this syndrome developed; moreover they experienced only a fleeting migratory polyarthritis. One patient (case 3) did not return for examination until long after the appearance of joint manifestations. The following three case histories illustrate the varying clinical picture.

REPORT OF CASES

CASE 1.—A 55-year-old man had progressively increasing hypertension for six years, with blood pressure levels as high as 285/140 mm. Hg. Inadequate therapy with hydralazine and hexamethonium chloride was begun in September, 1952. He entered Barnes Hospital two months later complaining of anorexia, constipation, and poor control of hypertension. Physical examination was unremarkable except for blood pressure of 214/110 mm. Hg and cardiomegaly. The hemogram was normal. The urine contained a few red blood cells and rare casts but no albumin. The nonprotein nitrogen level was 18 mg. and total proteins 6.4 gm., with 2.4 gm. of globulin per 100 ml. of plasma. The urinary excretion of intravenously injected phenolsulfonphthalein was 10% in 15 minutes. Cephalin-cholesterol flocculation was negative, and thymol turbidity of the serum was 0.8 unit. At discharge the blood pressure was regulated at an average of 173/94 mm. Hg. His medication varied from none to 500 mg. of hexamethonium chloride, depending on the prevailing level of systolic pressure, and 150 mg. of hydralazine orally five times a day.

For nine months he remained asymptomatic and well controlled on this regimen until in September, 1953, he noted redness, swelling, and tenderness of the external malleolus of one ankle. His blood pressure at this time averaged 154/84. Physical and laboratory examinations were not remarkable save for a thymol turbidity of 15 units and a cephalin-cholesterol flocculation of 4+. On discontinuation of hydralazine, the arthritis completely vanished within 24 hours. In the subsequent two months the patient's blood pressure rose to 192/99

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Because of space limitations, part of table 1 and all of table 2 have been omitted from THE JOURNAL and will appear in the authors' reprints.

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mm. Hg despite a sevenfold increase in hexamethonium intake and the addition of 500 mg. of rauwolfia (Raudixin) and 2.4 mg. of protoveratrine a day.

CASE 2.—In 1944 at the age of 43, it was found that this patient had a blood pressure of 160/80 mm. Hg and 3+ albuminuria. Immediately after a stroke of apoplexy in 1947, her blood pressure was 200/120. It had risen to 250/140 in October, 1951, when she was admitted to Barnes Hospital for hypophyseal therapy. Hemogram and urinalysis were normal. Renal and cardiac function were good. With 500 mg. of hexamethonium chloride and 50 mg. of hydralazine given orally every four hours, her blood pressure was regulated at approximately 140/90. By July, 1952, it had fallen to 130/70. In August, swelling and tenderness of both hands and ankles developed and increased to the point of complete immobilization.

Physical examination in Barnes Hospital in October revealed generalized adenopathy. The heart was not enlarged. There were no palpable abdominal organs and no objective joint abnormalities. The temperature was 37.8 C and the blood pressure 142/80 mm. Hg. There were 3,900,000 erythrocytes

CASE 3.—After a stroke of apoplexy when she was 38 years old, this patient's systolic pressure was 280 mm. Hg. In the next four years, tinnitus, vertigo, amblyopia, headache, and dyspnea developed; her weight dropped from 224 to 122 lb. (101.6 to 55.3 kg.). On admission to Barnes Hospital in June, 1952, the woman had a blood pressure of 245/160 mm. Hg, mild hemiparesis, an enlarged heart, and ocular fundi with hemorrhages, exudates, and papilledema. There were 3,350,000 red blood cells and 6,600 leukocytes per cubic millimeter of blood. The urine contained 1+ albumin. The nonprotein nitrogen was 34 mg. per 100 ml. of plasma. Urinary excretion of intravenously injected phenolsulfonphthalein was 30% in two hours. Liver function tests were not done, but there were 6.9 gm. of total proteins, with 2.4 gm. of globulin per 100 ml. of plasma.

On discharge from the hospital, her blood pressure was regulated at 173/107 mm. Hg on 0.5 gm. of hydralazine and a maximum of 2.5 gm. of hexamethonium chloride per day, taken orally in divided doses. For a year her blood pressure gradually fell, was well controlled and she was asymptomatic on this regimen with no restriction of activity or diet.

TABLE 1.—Blood Pressure and Dosage Data

Case	Mean Blood Pressure, Mm. Hg, Before Hypophex*	During or Just Before Onset of Arthritis			Present			Mo. Hydralazine Taken Before Onset of Arthritis	Total Gm. Hydralazine Taken Before Onset of Arthritis	Maximum Daily Gm. Hydralazine
		Mean Blood Pressure, Mm. Hg*	Hydralazine, Average Gm./Day	Cs. Average Gm./Day	Mean Blood Pressure, Mm. Hg*	Hydralazine, Average Gm./Day	Cs. Average Gm./Day			
1	240/120	151/81†	0.75†	0.34†	192/99	0.00†	2.50	9	200	0.75
2	231/137*	149/82*	0.25	0.60	180/111*	0.00†	0.00	12	100	0.50
3	216/142*	144/90†	0.50†	0.56†	.....	.....	.....	12	175	0.50
4	200/120*	148/94†	0.48†	1.58†	173/111†	0.00†	3.13†	6	90	0.60
5	163/115*	148/90†	0.25	1.47†	180/??	0.00†	.....	5	60	0.38
6	220/135*	161/108†	0.45†	1.83†	200/119†	0.00†	3.05†	5	75	0.63
7	256/144*	138/93†	0.60	0.45†	180/110†	0.18†	2.00†	18	250	0.60
8	232/130*	142/94†	0.63	1.57†	168/98	0.00†	1.63	15	300	0.75
9	175/116*	134/91†	0.25†	0.70†	.....	.....	.....	2	25	0.38
10	211/118*	114/63†	0.50†	0.00†	187/103	0.00†	1.00	22	350	0.75
11	229/124*	152/100†	0.48†	2.35†	242/147†	0.00†	0.00	18	300	0.75
12	204/124*	127/73†	0.50	0.73†	176/106	0.00	1.00	8	100	0.50
13	218/115*	148/69	0.40	1.33	208/93†	0.00†	2.15†	11	125	0.50
14	213/113*	175/85	0.50	0.00	240/100	0.00	0.00	15	220	0.60
15	232/140*	145/97†	0.50†	1.00†	188/122†	0.00†	0.00	15	200	0.50
16	187/136*	137/89†	0.50†	0.68†	.....	.....	.....	12	140	0.60
17	202/115*	161/87†	0.30†	0.95†	183/108†	0.00	1.45	18	200	0.60
Mean	213/127	146/88	0.46	0.95	193/101	.....	1.38§	12	171	0.56

* Superscripts represent the number of blood pressure readings averaged.

† 5 day averages—ordinarily 25 blood pressure readings or doses of drugs.

‡ Full doses of Rauwolfia serpentina.

§ Excluding three patients who stopped hypophex completely.

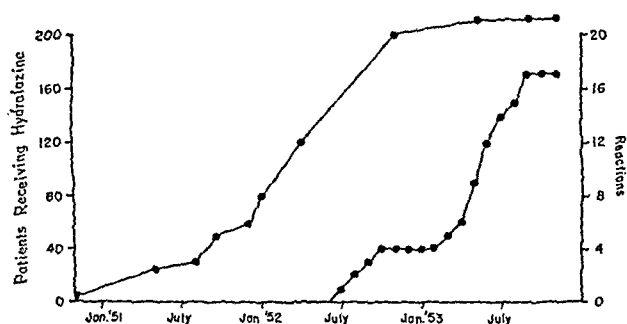
and 8,500 leukocytes per cubic millimeter of blood. The corrected sedimentation rate was 28 mm. per hour. There was 6 gm. of total proteins with a globulin value of 2.3 gm. per 100 ml. of plasma. There was no albuminuria, but the urine contained rare casts. Urinary excretion of intravenously injected phenolsulfonphthalein was 45% in 15 minutes. Two examinations did not reveal lupus erythematosus cells. Until administration of hydralazine was discontinued, the patient's course in the hospital was stormy. A fever as high as 42 C was recorded, and the arthritis persisted. Her temperature fell below 38 C and her symptoms subsided after the drug was omitted. When it was resumed, there was another spike of fever and a recrudescence of joint pain. Biopsy of an axillary lymph node revealed hyperplasia. She was discharged much improved symptomatically but without medication. Her average blood pressure was 150/82 mm. Hg.

Because of relatively poor control, therapy with hydralazine was reinstituted twice in the outpatient department. Each time the woman's blood pressure dropped from approximately 185/115 to 155/80 mm. Hg, but her joints immediately became so painful that use of the drug had to be discontinued. The mean blood pressure on her last eight visits was 180/111. The present medication is 0.15 gm. of rauwolfia a day. Her arthritis has been completely absent for the six months since hydralazine was last taken.

Twelve months after discharge, shaking chills, dysuria, and dark urine developed. Simultaneously anorexia, malaise, slight pedal edema, and polyarthritides appeared. Her blood pressure averaged 144/99 mm. Hg. When she was seen again after two months of arthritis, she had a slight petechial rash on her arms, generalized adenopathy, hepatomegaly, and a palpable spleen. There were 560,000 erythrocytes and 3,380 leukocytes per cubic millimeter of blood. Her urine contained Escherichia coli and 1+ albumin. The thymol turbidity was 11.8 units, and the cephalin-cholesterol flocculation was 4+. There was hyperglobulinemia of 3.1 gm. per 100 ml. The hydralazine dosage was decreased from 0.5 to 0.25 gm. per day, but it was two months before she would return to the hospital. At that time, physical examination and laboratory data were essentially unchanged save that lupus erythematosus cells were found on several occasions in her blood. When administration of hydralazine was stopped, her maximum afternoon temperature, which had varied from 38.6 to 39.4 C, ranged from 37 to 38 C. In the two weeks after therapy was discontinued, she felt generally better, although her fever exceeded 38 C on four occasions. Cortisone was then given with disappearance of pyrexia; however, after six weeks of hospitalization her blood pressure had daily swings from 225/120 to 140/70 mm. Hg with a mean of 164/96. At the time of

discharge she was taking 1,875 mg. of hexamethonium chloride, 1.9 mg. of protoveratrine, and 8 mg. of alseroxylon (Rauwiloid) a day.

In addition to the 17 definite instances of toxicity due to hydralazine, in 8 persons treated with hyphex mild symptoms developed that may have been an incipient form of the same syndrome that was aborted by reducing or stopping administration of hydralazine. All had relatively normal blood pressure and vague malaise with aching joints. No normal cephalin-cholesterol flocculation tests were obtained. Three other patients had atypical clinical pictures including relative normotension. Eleven months after beginning hyphex therapy a 42-year-old white woman had podagra followed by polyarthritis that was diagnosed as gout. She had 8.3 mg. of uric acid per 100 ml. of plasma, and there was a good response to colchicine despite continued hydralazine ingestion. After six months of therapy a 40-year-old white man became icteric and was found to have a total of 4.68 mg. of bilirubin per 100 ml. of serum. His clinical course was that of mild infectious hepatitis that began to regress a week after use of hydralazine was stopped. A cephalin-cholesterol flocculation test was not obtained until nine



The points on the upper line indicate the number of patients who were receiving therapy with hydralazine at a given time. The lower line indicates the number in whom a delayed toxic reaction to the drug had developed by a particular month. The scales are different by a factor of 10. It is perhaps noteworthy that in the four months from October, 1952, to March, 1953, no new cases appeared, whereas during five months this summer beginning with May, 1953, and continuing through September, 12 cases developed.

days after the last dose of hydralazine was taken at which time it was 2 +. After 10 months of treatment, a 64-year-old white man had as his only symptom hypersensitivity from the waist down sufficient to prevent him from walking; a recent cephalin-cholesterol flocculation was 3 +. The data for these eight patients is given in the second part of the tables.

That abnormal cephalin-cholesterol flocculation and thymol turbidity were not ordinarily found during hydralazine administration was demonstrated by doing these tests on 25 asymptomatic patients who had been on full therapy with similar doses of hydralazine for five months to two years. The cephalin-cholesterol flocculation never exceeded 1 +, and only once was the thymol turbidity more than 4 units.

To date the clinical picture has proved rapidly reversible in all but 1 (case 3) of the 15 patients who have reduced or discontinued dosage of hydralazine for more than a month. Symptoms have vanished, while physical and laboratory abnormalities when followed have reverted to their prearthritic state.

COMMENT

The causative role of hydralazine in producing this syndrome is substantiated by the following facts. 1. Symptoms and signs regressed rapidly when the drug was omitted; severe arthritis sometimes disappeared in 24 hours. 2. In five cases, one or two doses of the drug caused high fever and an acute recurrence of joint manifestations. 3. 1-Hydrazino-4-methylphthalazine and 1,4-dihydrazinophthalazine, chemical analogues of hydralazine, caused the same immediate pyrexia and arthritis in one patient (case 12) that hydralazine thrice produced.⁴ 4. The disease became severer (disseminated lupus erythematosus) when administration of hydralazine was continued despite arthralgia, with regression when it was discontinued. 5. The incidence of the syndrome in patients treated has increased rapidly during the past year (figure). That the hexamethonium ion did not influence the syndrome is indicated by its disappearance while this agent was still being taken.

The characteristically elevated cephalin-cholesterol flocculation, the relative normotension, and, when present, the findings compatible with collagen disease serve to separate delayed toxicity from the immediate febrile reactions and mild early transient arthralgias noted with administration of hydralazine.⁴ The condition is easily differentiated from hexamethonium overdosage that in its acute form is characterized by autonomic paralysis and in its chronic form by interstitial pneumonia.⁴ Acute hexamethonium intoxication has been seen only in azotemic patients who became constipated. In this situation, the damaged kidneys could not excrete the additional drug absorbed from the excessive intestinal pool; however, the margin of safety for hexamethonium salts is considerable since the average therapeutic plasma level is a tenth of that required to produce even mild symptoms.^{2b} Of our five clinical cases of chronic hexamethonium reaction, four patients were men, four were Negro, and all had malignant hypertension.⁴ The syndrome reported here usually resembles one of depletion of some necessary substance rather than one of allergic sensitivity to a drug.

The necessity for discontinuing the use of hydralazine in adequately treated patients formerly suffering from severe and malignant forms of hypertension has posed a therapeutic problem that is still unsolved. The substitution of extracts of *Rauwolfia serpentina* has invariably resulted in a return of hypertension, often despite considerable increases of hexamethonium dosage. For instance, two patients (cases 5 and 6) were taking a daily average of more than 0.6 gm. of rauwolfia along with almost doubled doses of hexamethonium chloride when their most recent blood pressures were obtained (table 1). A substitute for hydralazine, with a similar antihumoral action, is essential for continued control of hypertension in those persons who cannot continue to take the drug because of developing collagen disease. Because the reactions have been reversible, they do not develop in all patients, and the hazard of severe and malignant hypertension is real, the use of hydralazine and hexamethonium chloride represents a calculated risk

worth taking when hypertension endangers health. The agent should not, however, be used indiscriminately without adequate follow-up and an awareness of the nature of late toxic reactions.

SUMMARY AND CONCLUSIONS

Hydralazine (Apresoline) hydrachloride continuously administered for the treatment of hypertension for 2 to 22 months has apparently caused collagen disease of various degrees of severity in 17 of 211 patients. The

condition regressed in all patients when the use of the drug was discontinued. Certain tests, usually correlated with hepatic function, are helpful diagnostic aids.

ADDENDUM

Since this report was written, one patient (case 6) died of a ruptured dissecting aortic aneurysm that was not demonstrable when the hypertension had been controlled.

600 S. Kingshighway (10) (Dr. Schroeder).

SOME DIFFICULTIES IN EVALUATING FUNCTIONAL RESULTS AFTER MITRAL COMMISSUROTOMY

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and

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Most reports on the so-called functional improvement following mitral commissurotomy have to be taken on faith. The almost universal acceptance of reports of results that defy critical analysis is unique in modern medicine. Everyone recognizes the difficulties in obtaining noteworthy physiological studies often enough in individual instances to permit some type of correlation with the subjective impression of the patient or even of his physician. Yet, these very difficulties should serve to sharpen the critical clinical acumen of the clinician, because mitral commissurotomy is a term that is applied to a group of blind and crude procedures, none of which, in our experience, in a single instance, has destroyed the characteristics of the lesion it purports to attack. The technical accomplishments of this procedure are interpreted by one person—the surgeon. We do not wish, at this time, to enter into a critical analysis of the surgeon's interpretation, but perhaps the surgeon's enthusiasm is best exemplified by his report of the size of the mitral valve in precise terms of millimeters, which is based on the kinesthetic and epicritic sensations of the gloved finger palpating an irregular orifice in three dimensions, larger or smaller than the finger, and always subject to change in size.

Furthermore, mitral stenosis is but one, albeit important, aspect of rheumatic heart disease that lasts for decades and is subject to unpredictable exacerbations and remissions.¹ We believe that only by longitudinal studies of years' duration, before and after surgery, by competent physicians can the salutary effects of mitral commissurotomy be determined. The postoperative interval is still too short for any definite statement to be made concerning the ultimate value of this operation in the treatment of a disease with such a variable clinical picture as mitral stenosis. The reports of so-called functional improvement following mitral commissurotomy represent, at best, short-term results compared to the duration of the natural history of rheumatic fever. Unless one knows at what stage in the natural history of rheumatic fever the operation was done and the details of the difficulties the person had had since the first recognition of his rheumatic fever or rheumatic heart disease, one may not be able to distinguish the effects of surgery from that of a naturally

occurring or medically induced remission. Witness the fact that salicylates have been known for almost 100 years. Yet, the effects of salicylates on this disease are still a matter for lively debate.²

Dyspnea, the most prominent symptom of mitral stenosis, is frequently partly, and at times wholly, due to noncardiac factors,³ the commonest of which is of emotional origin. Even when dyspnea is totally of cardiac origin, its diminution and, indeed, its total abolition may take place in the presence of progressive deterioration of the heart. For, although dyspnea of cardiac origin is a symptom of significant heart disease, it may still be an early sign, in that succeeding signs of right heart failure usually run a protracted course of one or more decades.¹

The lack of public knowledge, in the epistemologic sense, of the surgeon's accomplishments (good, bad, or indifferent), the unpredictable and chronic course of rheumatic heart disease, and the lack of a one to one correlation between dyspnea and the extent of cardiac involvement represent some of the fundamental difficulties in evaluating the so-called functional results of mitral commissurotomy. Our purpose is not to give a final assessment of the value of this operation, which we believe is impossible at this time, but solely to stimulate a more critical attitude in assessing functional improvement, so that mitral commissurotomy can more quickly find its proper place in the management of mitral stenosis.

IMPROVEMENT WITH MEDICAL MANAGEMENT

First, we must emphasize the truism that most persons with mitral stenosis and failure can obtain functional improvement with medical management. Functional improvement may vary from a slight degree, in those with the most extensive disease, to complete abolition of all signs and symptoms of failure in others. The intervals between successive episodes of worsening of the functional status of the heart or frank failure may vary from

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weeks to years and rarely to decades. The episodic nature of failure in mitral stenosis is exemplified by the following case:

A 45-year-old woman (referred by Dr. Leon Prince) was admitted to St. Joseph's Hospital on the service of one of us (L. A. S.) in March, 1938, because of increasing heart failure of six weeks' duration. Symptoms of heart failure followed an upper respiratory infection. There was no previous knowledge of heart disease. Physical examination revealed findings typical for mitral stenosis, auricular fibrillation, and failure of both the left and right sides of the heart. With a medical regimen of salt restriction, ingestion of digitalis, and mercurial injections, she lost all signs of failure within four weeks and was discharged on a maintenance dosage of digitalis. She remained compensated until March, 1939, when transient aphasia and a recurrence of heart failure developed. An intensive medical regimen again restored compensation until January, 1940, when failure occurred again in the wake of a respiratory infection. Again, compensation was restored quickly. But, in October, 1940, failure recurred and was persistent, so that she was readmitted to St. Joseph's Hospital; compensation was restored within one month, only to break down again in the next two months, so that she reentered the hospital in January, 1941. After an intensive medical regimen lasting two months, she was discharged and remained compensated with the aid of digitalis for the next five years. In 1946, and again in 1948, she had heart failure and was hospitalized at Temple University Hospital. Since 1948, she has remained compensated, although she voluntarily limits physical activities. She has needed no mercurial injection since 1948. In 1952, she danced on one occasion.

This case illustrates the episodic nature of, and the variable intervals between, bouts of failure in a person with rheumatic heart disease. Had a mitral commissurotomy been done in 1941 or in 1948 and the clinical course remained unchanged, the surgical enthusiast might have ascribed the five-year functional improvement to the operation. Compare the case above with that following:

A 21-year-old man (referred by Dr. Carl Zibelman) was admitted to Temple University Hospital on the service of one of us (L. A. S.) on Aug. 28, 1941, because of reactivation of rheumatic fever, the first attack of which occurred at the age of 7 years. Examination revealed typical mitral stenosis with first degree block. Under medical therapy, he improved and was discharged in six weeks. He has been seen at yearly intervals and was last seen in February, 1953. There has been no recognizable change in his cardiac status since 1941.

These two cases, cited because they represent two common but contrasting variations of the clinical course of rheumatic heart disease, stress an important observation first made by Grant¹⁴ and subsequently abundantly verified, namely, that once the heart has adjusted to a constant load, no further deterioration occurs until another load is added. The statement, which has been repeated often since the advent of mitral commissurotomy, that mitral stenosis is a progressive deteriorating disease owing to the effects of obstruction has, so far as we are aware, no factual basis and is contrary to all studies with which we are familiar on the prognosis of mitral stenosis. Moreover, the unreasonable and inhumane pessimistic practice of recommending operation on the basis of the possibility of sudden death due either to pulmonary edema in a person with compensated rheumatic heart disease or to exsanguinating pulmonary hemorrhage is entirely unjustified, because these events are extremely rare and because the possibility of death following mitral commissurotomy is almost infinitely greater. In our ex-

perience, we have not observed a single instance of sudden death in a person with rheumatic heart disease in the first attack of pulmonary edema. Indeed, we have not had an instance of sudden death due to succeeding attacks of pulmonary edema in the absence of preexisting heart failure. A review of the literature since 1930 discloses only four deaths reported as due to pulmonary hemorrhage related to mitral stenosis.⁴

Deterioration of the heart in mitral stenosis is most commonly saltatory and due to specific precipitating causes. It is almost axiomatic in cardiology that, when failure appears, a precipitating cause should be sought. Prevention or treatment of such causes are an important part of the treatment of failure itself. The more sudden the onset of failure or the more rapid its progress, or both, the more likely is it that a specific factor other than mitral stenosis is operating. Yet, it is just such patients who are most vulnerable to acceptance of surgery.

The prognosis is better if a precipitating cause for failure is found, particularly one that is subject to successful treatment. It is most important that the cardiac status after surgery, if done, be compared to the status of the person at his best, after adequate medical therapy, and not at his worst, during failure before medical treatment was instituted. To judge from the written reports, the problem of precipitating causes of heart failure and the results of preoperative medical therapy have been ignored. The subtle problem of convalescence that has been, at its best, delayed by surgery, is extremely difficult to assess.

Histories taken personally by each of us independently indicate that 41.7% of our patients subjected to mitral commissurotomy had obvious precipitating causes of failure.⁵ The commonest precipitating cause is a respiratory infection. Other causes are (1) excessive physical exertion, (2) pulmonary infarction, (3) paroxysmal rapid heart action, (4) pregnancy, and (5) emotional disturbances. As Sir Thomas Lewis⁶ stated, "A pessimistic attitude produces apprehension, alarm or a constant feeling of insecurity." The implication that the course of rheumatic heart disease is always rapidly downhill and that surgery will reverse this course engenders psychogenic dyspnea that at times cannot be dispelled without operation. Finally, when there is no specific cause for the appearance or intensification of heart failure, a careful search should be made for stigmas of activity of rheumatic fever.

The problem of recognizing the precipitating causes of failure is part of the large problem of the evaluation of the adequacy of the total medical therapy for failure. Obviously, two persons with similar degrees of failure have different outlooks if one has been digitalized and the other not. For the same degree of failure, the poorer the treatment, the better the prognosis, if it is, as yet, not too late to begin adequate therapy. The fact that many persons have improved functionally with a medical regimen initiated in the hospital before operation is, in itself, eloquent testimony of the inadequacy of medical therapy before hospitalization. It is, to say the least, embarrassing to meet a person who has traveled 1,500 miles for a mitral commissurotomy who has never been admonished about his excessive use of salt.

We are not stating that operations should or should not be done after recovery from failure due to a precipitating event or to inadequate medical treatment. We do say that improvement, if any, after surgery is not necessarily due to the operation. Only after long follow-up studies, preferably after observation during a similar stressful period, can one attribute improvement to the operation.

One must, also, be alert to the possibility of unnecessary medical therapy. For instance, we have learned that many persons with mitral stenosis and sinus rhythm who have by medical management alone recovered from failure due to a precipitating event have remained compensated without digitalis for many months. Seven of 10 such persons in our practice who have received a maintenance dose of digitalis from one to over 10 years have now gone 6 months without any evident need for this drug.

PSYCHOGENIC AND ORGANIC FACTORS

The differentiation of psychogenic and organic factors in the production of dyspnea in persons with mitral stenosis may be very difficult. We believe that observations should be made (1) of the constancy of the relationship and of the amount of physical effort to dyspnea, (2) of the circulation time, venous pressure, and other objective evidence of failure, and, most important, (3) of the roentgenologic findings of the heart and lungs. Severe dyspnea in the absence of roentgenologic signs of pulmonary congestion is probably of noncardiac (psychogenic) origin. Psychogenic dyspnea may be self-induced or iatrogenic. The psychotherapeutic effect of a glamorous cardiac operation has been recognized by many conscientious surgeons. In 14 persons operated upon for mitral stenosis, Varco and Baronofsky could do nothing surgically in 4.⁷ Yet, these four had remarkable functional improvement following their sham operations that did not differ, in general, from the improvement seen in those in whom apparent adequate mitral commissurotomy had been done. We have also noted such instances. The following case, chosen because the surgeon did nothing, shows the striking psychotherapeutic effects of surgery.

A 40-year-old woman (referred by Dr. Wolcuff) had gradually reduced her physical activities over the past 10 years so that for the previous 2 years she had been confined to one floor of her home and for most of the day to a chair. A clinical diagnosis of interatrial septal defect was made that was confirmed by catheterization. These studies showed an arterial oxygen content in the superior vena cava of 11.4 vol. %, and in the right atrium of 14.6 vol. %. Because of the tremendous pressure in the pulmonary artery (92/44 mm. Hg), and in the right ventricle (98/10 mm. Hg), an attempt was made to correct the interatrial septal defect surgically but the defect was so large that this was impossible. After a stormy postoperative week, she recovered rapidly and was discharged at the end of the second week. She walked out of the hospital and made a remarkable functional recovery, so that she was able within four weeks to do her own housework. Three months after operation, she asked permission to seek outside employment.

We have already stated that there is no one to one relationship between symptoms and the extent of heart disease. Cardiologists have known for a long time that dyspnea may diminish with the onset of right heart failure or after the appearance of auricular fibrillation that is controlled with digitalis.⁸ Yet, all cardiologists have regarded these events as indications of progression of

cardiac disease farther down the road to its ultimate end. There is no reason, as yet, to regard the surgical production of permanent auricular fibrillation that occurred in our series of 11.1% of persons subjected to mitral commissurotomy as different in its prognostic significance because dyspnea may be less.⁵ Similarly, dyspnea can be diminished by surgical production of embolic phenomena that lead to a restriction of physical and sometimes mental activities. The incidence of these events has been reported as varying from 2.8% in those with sinus rhythm to 13.5% in those with auricular fibrillation.⁹ Cardiac enlargement has also been regarded as a sign of an increased burden on the heart. We see no reason why surgical production of enlargement, seen roentgenographically in 57.7% of our patients followed for as long as 22 months after surgery, should be regarded differently.¹⁰

We leave to the clinical physiologist an evaluation of the validity, the intrapersonal error, the stability, and the noteworthiness of the numerical figures attributed to them by catheterization.¹¹ Some of the mathematical manipulations have been regarded as absurd.¹² As clinicians, we wish to emphasize that, in our opinion, the figures obtained before and after operation cannot be related to the operation itself unless all the clinical data at the time the two studies were done are known. Thus the significance of catheterization data given as isolated reports defies analysis. A drop in pulmonary pressure obtained after operation may be due to the operation, but it may also be due to the medically induced or natural improvement before or after operation but after the preoperative studies. Furthermore, a drop in pulmonary pressure may actually mean a worsening of the cardiac condition, if auricular fibrillation or cardiac enlargement has occurred.¹³ We do not feel that data obtained by catheterization in the immediate postoperative period can be interpreted as showing improvement because, in our experience, the cardiac silhouette at this time is always larger than it was before operation.¹⁰

POSTOPERATIVE MORBIDITY

Lastly, the frequent morbidity, which is usually due to a reactivation of rheumatic fever¹⁴ and occasionally due to surgical production of mitral regurgitation,⁵ makes evaluation of functional improvement difficult. This is so because patients, and indeed their physicians, are so relieved that the patient feels better after the postoperative prolonged illness that they forget the preoperative status and talk in terms of how much better the patient is compared to his postoperative illness. The deceptive and the confused nature of the functional improvement following operation is shown by the following report of a person who is pleased (at the time of writing) with the results of operation.

A 41-year-old woman (referred by Dr. E. Weinberger) first had dyspnea in 1943, after the death of her father. A diagnosis of mitral stenosis was made. Dyspnea disappeared following reassurance. She remained well until December, 1947, when, after a respiratory infection, cough, fever, and recurrent hemoptyses developed. Nine days of medical treatment at Temple University Hospital abolished all symptoms until a recurrence in September, 1949. This time, she remained at the hospital three weeks. In the next year, she admitted to fatigue and slight dyspnea upon climbing steps but received no cardiac medication. In the last week of January, 1953, a mild respiratory infection developed and lasted three weeks. After this, she

had a sharp pain in the region of the left scapula, which she ignored. The next day, she did heavy housework because of the absence of her maid. That evening partial aphasia and pulmonary edema developed. She was admitted to the service of one of us (L. A. S.) at Temple University Hospital. Energetic medical therapy restored compensation within 10 days, after which she walked on the level free of dyspnea and had residual hesitation in speech.

Mitral commissurotomy was finally performed on March 10, 1953. The valve was heavily infiltrated with calcium. As the anterolateral commissure was fractured, the finger lacerated the left ventricular wall. Bleeding was quickly controlled by sutures. No regurgitant jet was palpable after operation, but auricular fibrillation was recognized. The following day a systolic murmur, of grade 2 intensity, was heard for the first time. Dyspnea increased so that on the fourth postoperative day, four pillows were necessary for comfort. Fluid was present in the left pleural cavity. The neck veins bulged, the liver was enlarged to the level of the umbilicus, and the legs were edematous, 4+. She had gained over 12 lb. (5.4 kg.). In addition to an increase in the amount of digitalis, she was placed on salt restriction and was given mercurials, and her chest was tapped. Over the next five weeks, seven pleural taps were necessary, yielding an average of 600 ml. of fluid each. Finally, the chest remained dry and the legs lost their edema. At the time of writing she could walk slowly on the level without dyspnea. She had driven a car and danced slowly.

The so-called functional improvement of this patient after mitral commissurotomy was an illusion based on her recovery from the surgically produced heart failure. She was obviously no better than she was either before or after her attack of pulmonary edema. The physical examination suggested, on the contrary, that she was considerably worse, for she had still at the time of writing bulging neck veins, moderately enlarged liver, a larger heart by roentgenography, auricular fibrillation, and signs suggesting mitral insufficiency plus the mitral stenosis. Subsequent events (increasing physical limitations and intensification of a regimen for cardiac failure) established the illusory nature of the functional improvement.

We have other instances of persons who are elated because of the clinical subsidence of a disabling postoperative reactivation of rheumatic fever. Even, however, in persons fortunate enough not to have postoperative symptom-producing complications, changes in the heart may occur that are ordinarily regarded as deleterious in the presence of so-called functional improvement. We refer to permanent auricular fibrillation, roentgenologic evidence of cardiac enlargement (often overlooked because of surgical removal of the left auricular appendage), and the presence of subclinical right heart failure.

SUMMARY

To be meaningful, reports attributing improvement to mitral commissurotomy should provide evidence that (1) medical and naturally occurring factors were not active and (2) no deleterious effects were produced. Sufficient factual data should be given so that the reader can form his own conclusions. The surgeon's conception of his accomplishment should be included. A correlation of these statements with the so-called functional improvement may help to differentiate psychotherapeutic, naturally occurring, and medically induced remissions from the surgical accomplishments. For instance, Souttar's patient,¹⁵ often cited as the first to have a successful mitral com-

missurotomy, had such gross mitral regurgitation and so little mitral stenosis that nothing was done, and Cutler¹⁶ did what every cardiac surgeon would fear to do, namely, to excise part of the septal leaflet of the mitral valve.

An accurate evaluation of results is extremely important because mitral commissurotomy has an immediate higher mortality (at the very least 6%) for any group than the naturally occurring annual mortality (about 1%) and because its morbidity is very high. The fact that the heart can readjust functionally to the added load imposed on it by surgery should not be permitted to mask the actual effects of the operation.

Broad and Ontario St. (Dr. Soloff).

CLINICAL NOTES

PSEUDOHEMATURIA CAUSED BY PARA-AMINOSALICYLIC ACID, SULFONAMIDES, AND PARA-AMINO BENZOIC ACID

L. B. Horowitz, M.D.

David Salkin, M.D.

and

John Gilrane, M.D., San Fernando, Calif.

In December, 1952, a semiambulatory tuberculosis patient reported to his physician that he voided bloody urine in the toilet bowl on two occasions. Unfortunately, he had already flushed the toilet, but later urinalyses showed no blood or pus chemically or microscopically. Examination of the genitourinary tract, including cystoscopy and pyelography, revealed a bifid left kidney with a double ureter but no lesion to explain the hematuria.

During the next two months, several other patients complained of voiding bloody urine, and this was corroborated by their physician. Although the fluid was not examined, numerous urinalyses on these patients failed to reveal blood, and further detailed studies were contemplated. Questioning of one of the patients, a medical student, disclosed, however, that the urinary stream was colorless but turned blood-red only after it hit the bowl. One of us (J. G.) noted the same phenomenon independently on himself.

Further investigation revealed that all of these patients had voided shortly after the hospital afternoon rest hours (1 to 3 p. m.) and that they were all receiving 1 gm. of streptomycin twice weekly and 15 gm. of sodium *p*-aminosalicylic acid daily. Moreover, the janitorial staff always cleaned the toilets during the rest hours and invariably left a liberal amount of Acme chlorinated lime in the bowl to be flushed by the first user. Studies were made and showed that the blood-red urine was produced by the action of the chlorinated lime on urine containing *p*-aminosalicylic acid, its sodium and calcium salts, and its degradation products. A similar "bloody" reaction

From the Veterans Administration Hospital, San Fernando, Calif.; the Barlow Sanatorium, Los Angeles; and the Department of Medicine, School of Medicine, University of California, Los Angeles.

Henry E. Weimer, Ph.D., and Harold C. Haymond, A.B., gave technical assistance.

occurred when the urine contained sulfonamides or *p*-aminobenzoic acid. No such reaction occurred with the urines of patients not taking these drugs.

MODE OF ACTION

Hypochlorous acid and its salts, the hypochlorites, are unstable and decompose readily to give up oxygen and chlorine. The salts in ordinary commercial use are calcium hypochlorite and sodium hypochlorite and are utilized as bleaches, oxidizers, disinfectants, and decontaminants. Calcium hypochlorite, $\text{Ca}(\text{OCl})_2$, is a dry white powder and is prepared for commercial use as chlorinated lime by passing chlorine over dry calcium hydroxide. The resulting compound is a mixed calcium salt of hypochlorous and hydrochloric acids and has a variable composition of approximately $\text{Ca}(\text{OCl})_2 \cdot \text{CaCl}_2$ with water.¹ It is a white powder that has a strong odor of chlorine, contains about 35% active chlorine, and decomposes on exposure to water or air; most of it is soluble in water or alcohol. Sodium hypochlorite (chlorinated soda) has similar properties and is commercially available in dilute solutions, such as Purex or Clorox, that contain about 5% of available chlorine.

The hypochlorites produce an orange or red color, resembling blood, when mixed with *p*-aminosalicylic acid and its sodium and calcium salts; most of the sulfonamides; *p*-aminobenzoic acid, procaine and the compounds procaine amide and procaine penicillin; butacaine (Butyn) sulfate; and ferric salts. They produce a purple color with aniline, a brown color with histidine, and a green color with succinylsulfathiazole (Sulfasuxidine). However, no color reaction occurs when the hypochlorites are mixed with compounds such as salicylic acid, acetylsalicylic acid, benzoic acid, tyrosine, casein, phenylalanine, tetracaine (Pontocaine), dibucaine (Nupercaine), and benzylamine and well known chemotherapeutic agents such as streptomycin, penicillin, oxytetracycline (Terramycin), chlortetracycline (Aureomycin), chloramphenicol, and isoniazid. Examination of the aromatic compounds mentioned shows that those producing a red color with the hypochlorites have a primary unsubstituted amino group (NH_2) attached directly to the carbon ring. Histidine and succinylsulfathiazole show a substituted arylamine group.

The mode of action of the hypochlorite was explored. No color reaction occurred when *p*-aminosalicylic acid was mixed with acids such as hydrochloric or sulfuric, bases such as sodium or ammonium hydroxide, oxidizing agents such as hydrogen peroxide, reducing agents such as sodium thioglycollate, and cleaning agents such as trisodium phosphate. The ordinary salts of chlorine, bromine, and iodine also failed to produce a color reaction. A red color developed immediately, however, when nascent chlorine was bubbled through a solution of *p*-aminosalicylic acid or sulfanilamide or when bromine water was added. It is felt, therefore, that the hypochlorites act by virtue of their available chlorine.

The chlorine acts on the aromatic primary amines in one of two ways, either by a halogenation process similar to the bromization of aniline² or by the formation of a chloroamide. In the halogenation process, the amino group acts as a powerful agent in affixing the halogen at

all available positions, ortho and meta to itself. In the case of aniline, there is produced a trichloranilin, and similarly there may be produced compounds such as mono-, di-, or trichlor-*p*-aminosalicylic acid. The chloroamide process apparently occurs when a hypochlorite acts on a sulfonamide.³ Either one or both hydrogen atoms are replaced by the chlorine to produce a monochloramide ($\text{N} \cdot \text{H} \cdot \text{Cl}$) or a dichloramide ($\text{N} \cdot \text{Cl} \cdot \text{Cl}$).

A search of the organic chemistry literature provided no definite clue to the exact chemical nature of the organic compounds responsible for the red color. Although Beilstein⁴ and Heilbron and Bunbury⁵ list chlorine derivatives for isomers of *p*-aminosalicylic acid, the chlorine derivatives of the compound itself have not been adequately investigated.

SENSITIVITY

Color development was proportional to some extent to the concentration of the *p*-aminosalicylic acid and calcium hypochlorite. The color intensity was plotted in Klett units and followed Beer's law over a portion of the curve. In aqueous solution, an excess of chlorinated lime produced colors visible to the naked eye at the following levels. Para-aminosalicylic acid showed an orange color at 0.2 to 0.6 mg.; the sulfonamides showed a yellowish color at 3 to 6 mg. and an orange color that deepened on standing at 12 to 20 mg.; sodium *p*-aminobenzoate showed a pale orange color at 0.15 mg; procaine hydrochloride produced a yellow color at 0.2 mg. and an orange color at 0.5 mg.; aniline produced a purplish color at 0.035 mg. and the color became intense at 0.07 mg. The sulfonamides tested include sulfanilamide, sodium sulfathiazole, sodium sulfadiazine, sulfapyridine, and sulfoxazole. Several times these concentrations produced deep red colors resembling blood.

In urine, an excess of chlorinated lime detects *p*-aminosalicylic acid and its degradation products at 2 to 3 mg. so that it can be seen with the naked eye, or about 10 times its concentration in water, chiefly because of the already amber color of the urine. The sulfonamides are detectable in urine at a level of 20 to 30 mg. and sodium *p*-aminobenzoate at an even higher level. Even greater concentrations are necessary to produce the typical blood-red color. When tested against the urines of patients taking *p*-aminosalicylic acid, chlorinated lime produced a blood-red color as early as 30 minutes after ingestion and as late as 14 hours or more. In serum, the standard tests are much more sensitive in detecting the drugs than the chlorinated lime; thus, it cannot replace the current tests for the detection of these compounds.

SUMMARY

The use of commercial preparations containing calcium or sodium hypochlorite as disinfectants in toilet bowls may produce a red color resembling blood on the

1. The Merck Index of Chemicals and Drugs, ed. 6, Rahway, N. J., Merck & Co., Inc., 1952.

2. Ray, F. E.: Organic Chemistry, Philadelphia, J. B. Lippincott Company, 1941.

3. Fieser, L. F., and Fieser, M.: Organic Chemistry, ed. 2, Boston, D. C. Heath & Co., 1950.

4. Beilstein, F. K.: Handbuch der organischen Chemie, ed. 4, Berlin, Springer-Verlag, 1940.

5. Heilbron, I. M., and Bunbury, H. M.: Dictionary of Organic Compounds, vol. 3, London, Eyre & Spottiswoode, Ltd., 1946.

addition of urine from patients who are taking *p*-aminosalicylic acid, the sulfonamides, and *p*-aminobenzoic acid. Although the hypochlorites are not so sensitive as the standard tests in detecting these drugs, they may be used as a rapid, cheap, qualitative screening test assuring the physician that the drugs are being taken. One must be aware that under these conditions a pseudo-hematuria may be produced and that it must be differentiated from true hematuria, especially in patients under treatment with sulfonamides.

CHEMICAL LABORATORY

This is the third of several reports on cigarettes, cigarette smoke, and filters by the Chemical Laboratory of the American Medical Association. The first report appeared in THE JOURNAL, July 4, 1953, page 917. It concerned filter tip cigarettes. The second report appeared in THE JOURNAL, July 11, 1953, page 1035. It concerned cigarettes in which the tobacco is claimed to have a low nicotine content.

WALTER WOLMAN, PH.D., Director.

A STUDY OF CIGARETTES, CIGARETTE SMOKE, AND FILTERS

3. Cigarette Holders

The Chemical Laboratory has examined five brands of cigarette holders that contain filters to determine their efficiency in removing nicotine and tars from cigarette smoke. The methods of analysis and experimental conditions for smoking have been described in a previous report.¹ Briefly, 47 mm. of each cigarette was smoked (two-thirds of a "standard" 70 mm. cigarette) using 35 ml. puffs of two seconds' duration taken once a minute.

A "standard" 70 mm. cigarette, one of the best-selling cigarettes, was used in the smoking experiments. These cigarettes weighed an average of 1.096 gm., were 69.9 mm. long, and had a circumference of 26.5 mm. The moisture content of the tobacco was 11.52% and the tobacco contained 2.08% nicotine on a moisture-free basis. The dry weight of the tobacco actually smoked was 0.631 gm. per cigarette.

Of the cigarette holders examined, both numbers 1 and 2 employ a metal trap like those found in many pipes. Number 3 uses a cylindrical paper filter measuring 56 mm. in length and 6 mm. in diameter and containing a number of small paper baffles. Number 4 uses a plastic cylinder measuring 36 mm. in length and 9 mm. in diameter and filled with granules of silica as a filter. Number 5 uses a cigarette inserted in the holder as the filter.

All cigarette holders tested changed the smoking characteristics of the cigarettes in two ways: First, air leaked in between the cigarette and the holder in all cases and around the ejectors in holders number 4 and 5. This leakage amounted to more than 5% in some individual holders. Second, all the holders used a compression fit to reduce this air leakage. The specially machined Bakelite holders used in this experiment for smoking the comparison cigarettes provided a rather snug fit with an internal diameter of 8.3 mm. (The cigarettes were sealed in these holders with a concentrated dextrose syrup that prevented any air from leaking between the holder and

the cigarette and insured that the entire 35 ml. puff was drawn through the cigarette.) Holder number 1, however, compressed the butt end of the cigarettes to 7.4 and 7.2 mm. and holder number 2 to 7.6 and 7.2 mm.; holders 3, 4, and 5 all compressed the butts to 7.8 mm. diameter.

The results of the experiments are given in the table. The figures in column 1 are obtained by multiplying the average number of puffs required to smoke the cigarette to the 47 mm. mark by the volume of each puff (35 ml.) and represent the average volume of smoke drawn into the absorption train. This mainstream smoke represents the smoke that presumably would reach the smoker's mouth. Column 2 shows the weight of nicotine in this smoke. Column 3 shows the weight of nicotine recovered from the holder and its trap or filter, and represents the nicotine removed from the mainstream smoke as it passes through the holder. Column 4 is the total of columns 2 and 3. The percentage reduction in nicotine in the mainstream effected by the holder is listed in column 5 and is based on the difference between columns 4 and 2.

In columns 6 and 7, the weight of tars appearing in the mainstream smoke per cigarette and the weight of tars recovered from the holder and its trap or filter are given. The

Removal of Nicotine and Tars from Smoke by Cigarette Holders

Column	1	2	3	4	5	6	7	8	9
"Standard" Cigarette	375	2.65	....	2.65	..	18.2	...	18.2	..
Holder 1	380	2.50	0.13	2.63	5	15.5	1.4	16.9	8
Holder 2	303	2.15	0.10	2.25	4	15.6	1.9	17.5	11
Holder 3	367	2.57	0.20	2.77	7	15.1	1.5	16.6	9
Holder 4	373	2.28	0.37	2.65	14	14.7	3.8	18.5	21
Holder 5	376	1.51	1.05	2.56	41	10.8	...	...	41

totals of these tars are listed in column 8. The percentage reduction in tars in the mainstream effected by the holder is listed in column 9 and is based on the difference between columns 8 and 6.

The tars absorbed by the tobacco in the cigarette used as the filter in holder number 5 could not be recovered. An approximate value for the weight of tars absorbed by holder number 5 may be calculated by assuming that the value for total tars found for the "standard" cigarette may be substituted for the total tars of holder number 5. The weight of the tars that were recovered from holder number 5 may then be calculated by subtracting the weight of tars found in the mainstream smoke (10.8 mg.) from the substituted value (18.2 mg.).

The figures in the table are the averages per single cigarette for runs of the first five cigarettes smoked through a clean holder and filter. The efficiency of most of the holders dropped as additional cigarettes were smoked. When 20 cigarettes were smoked through the holders, number 1 lost 27% of its original effectiveness, number 2 lost 42%, number 3 lost 14%, number 4 lost 34%, and number 5 lost none of its effectiveness.

Holder 5 was found to be the most effective of the filters tested. Holders 1, 2, and 3 were ineffective. The performance of holder 4 was intermediate between that of number 5 and the ineffective group.

1. A Study of Cigarettes, Cigarette Smoke, and Filters: I. Filter-Tip Cigarettes, a report of the Chemical Laboratory, J. A. M. A. 152: 917-920 (July 4) 1953.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., Secretary.

Maico Maxitone Hearing Aid

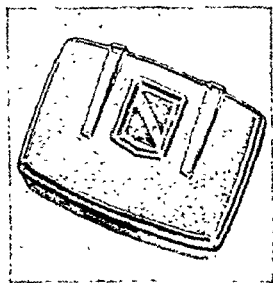
The Maico Company, Inc., 21 N. Third St., Minneapolis 1.

The Maico Maxitone Hearing Aid is a three tube instrument powered by one 1.5 volt A-battery of the mercury type and one 15 volt B-battery. The amplifying system is housed in a plastic case that measures 64 by 47 by 22 mm. and weighs 53 gm. The receiver weighs 8 gm., the receiver cord 5 gm., the A-battery 13.5 gm., and the B-battery 12 gm., making a total weight of 91.5 gm.

Evidence indicating good construction and satisfactory performance was obtained from sources acceptable to the Council.

Maico Transist-Ear Hearing Aid, Model O

The Maico Company, Inc., 21 N. Third St., Minneapolis 1.



Maico Transist-Ear Hearing Aid, Model O

The Maico Transist-Ear Hearing Aid, Model O, is a tubeless instrument employing three transistors. The power is furnished by a single 1.5 volt cell of the mercury type. The body of the instrument measures 46 by 64 by 16 mm. and, without battery and receiver attachments, weighs 84 gm. The battery weighs 14 gm., the receiver with its cord weighs 11 gm., making the total weight 109 gm.

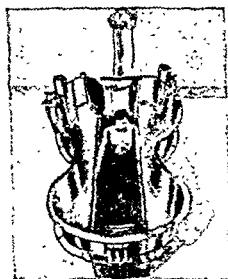
The Council obtained evidence indicating that this device

was soundly constructed

Hydromassage Subaqua Therapy Unit, Model HM 1100

Ille Electric Corporation, 50 Mill Rd., Freeport, Long Island, N.Y.

The Hydromassage Subaqua Therapy Unit, Model HM 1100, also referred to as the Combination Hydromassage Treatment and Wading Tank, is a large unit intended to be installed permanently, with connections to the plumbing, in a department of hydrotherapy.



Hydromassage Subaqua Therapy Unit, Model HM 1100

The complete unit consists of a stainless steel tank with a wading trough, adjustable hand rails, stainless steel steps, and body suspension wading harness. Included also are a water stretcher with cross bar and suspensions, canvas body sling, body hammock, head rest and plinth, miscellaneous tank fittings, dial thermometer, thermostatic water mixing valve assembly, two electric turbine ejectors, two turbine ejector carriages, and two turbine ejector elevators. The ejectors require 60 cycle alternating current at 115 volts and draws 1,150 watts.

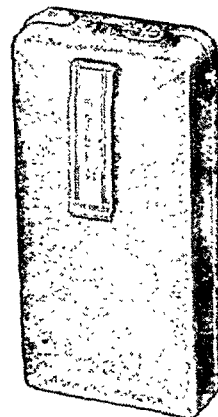
The apparatus is shipped in two parts: the larger measures 150 by 290 by 213 cm. (60 by 114 by 84 in.) and weighs 680 kg. (1,500 lb.), and the smaller measures 137 by 63 by 63 cm. (54 by 25 by 25 in.) and weighs 227 kg. (500 lb.).

Evidence indicating satisfactory construction and operation was obtained from sources acceptable to the Council.

Telex Hearing Aid, Model 954

Telex, Inc., Telex Park, St. Paul 1, Minn.

The Telex Hearing Aid, Model 954, contains two vacuum tubes and one transistor. It requires one 1.25 volt A-battery and one 30 volt B-battery. Excluding the minor projections, it measures 90 by 44 by 18 mm. The main portion of the instrument weighs 102 gm. The batteries weigh 49 gm., and the earphone with its cord weighs 20 gm., making a total of 171 gm. The Council obtained evidence indicating sound construction and satisfactory performance.



Telex Hearing Aid Model 954

Kegel Perineometer

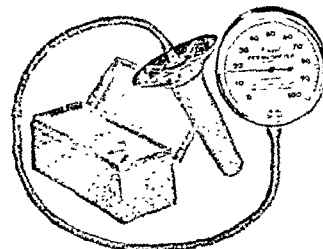
Perineometer Research Laboratory, Inc., 2007 Wilshire Blvd., Los Angeles 5, Calif.

The Kegel Perineometer is an apparatus for indicating the strength of contraction of certain pelvic and perineal muscles. The apparatus, by providing a wide range of resistances to the contracting muscles, is useful in the training and strengthening of these muscles. It consists of two parts: one is for insertion into the vagina, and the other is an aneroid manometer with a dial reading from zero to 100 mm. Hg. The two parts are connected by a rubber tube.

The part designed for vaginal insertion is made of rubber and shaped roughly like the finger of a glove. It is held rigid by a metal axis that projects to a height of about 9 cm. at right angles from the center of a circular disk that is about 7.5 cm. in diameter. When the rubber chamber is squeezed, the pressure is transmitted through the rubber tube to the manometer and the pressure is easily read.

The apparatus is contained in a case measuring 17 by 9 by 8 cm. (6½ by 3½ by 3¼ in.) and weighing 425 gm. (1 lb.). The shipping weight is 600 gm. (1¼ lb.).

Evidence obtained from sources acceptable to the Council showed that the device was well made and useful for the purpose for which it was intended.



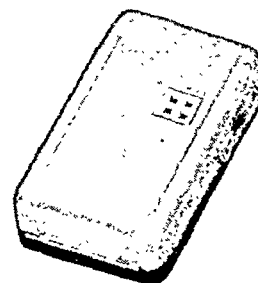
Kegel Perineometer

Otarion Hearing Aid, Model B-30

Otarion, Inc., 4757 Ravenswood Ave., Chicago 40.

The Otarion Hearing Aid, Model B-30, uses three vacuum tubes, one 1.25 volt A-battery, and one 30 volt B-battery. The body of the instrument measures 80 by 45 by 23 mm. and weighs 82.5 gm. The batteries weigh 40 gm., and with earphone and receiver cord the total weight is 134 gm. This model is larger, heavier, and more powerful than the Otarion Hearing Aid, Model B-15.

Evidence indicating satisfactory construction and performance was obtained by the Council.



Otarion Hearing Aid Model B-30

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WHY THE "BRICKER AMENDMENT" IS IMPORTANT TO THE MEDICAL PROFESSION

The controversy stimulated by the amendment to the Constitution proposed by Senator Bricker and 63 of his colleagues has spread to every segment of our population, including the medical profession. The American Medical Association has received a number of letters from physicians during the past few weeks expressing various sentiments concerning the proposal. Some endorse the amendment wholeheartedly; others have deplored the intervention of organized medicine in what they consider to be a nonmedical issue; still others have requested additional information defining the threat to our system of medical care posed by our present method of negotiating and ratifying treaties.

On January 7, 1953, Senator Bricker and 63 co-sponsors introduced S. J. Res. 1, 83rd Congress, which proposed the adoption of a constitutional amendment limiting the treaty-making authority. This resolution was referred to the Senate Judiciary Committee together with S. J. Res. 43 (sponsored by the American Bar Association). On June 15, 1953, the committee submitted a favorable report on S. J. Res. 1, with amendments, and recommended that it be adopted. The amended version of the resolution, as approved by the committee, stipulated that any provision of a treaty that violated the Constitution would be invalid and that the treaty power could be used to establish or modify internal law in the United States only through the enactment of domestic legislation that could have been adopted in the absence of such treaty.

In tracing the interest of the medical profession in the Bricker amendment, it is important first to recognize the fact that treaties become the supreme law of the land if ratified by two-thirds of the Senate present and voting. In addition, it must be noted that significant changes have occurred during the past few years in the scope of treaties and executive agreements negotiated by the executive branch of the government. Although these instru-

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WHY THE "BRICKER AMENDMENT" IS IMPORTANT TO THE MEDICAL PROFESSION

The controversy stimulated by the amendment to the Constitution proposed by Senator Bricker and 63 of his colleagues has spread to every segment of our population, including the medical profession. The American Medical Association has received a number of letters from physicians during the past few weeks expressing various sentiments concerning the proposal. Some endorse the amendment wholeheartedly; others have deplored the intervention of organized medicine in what they consider to be a nonmedical issue; still others have requested additional information defining the threat to our system of medical care posed by our present method of negotiating and ratifying treaties.

On January 7, 1953, Senator Bricker and 63 co-sponsors introduced S. J. Res. 1, 83rd Congress, which proposed the adoption of a constitutional amendment limiting the treaty-making authority. This resolution was referred to the Senate Judiciary Committee together with S. J. Res. 43 (sponsored by the American Bar Association). On June 15, 1953, the committee submitted a favorable report on S. J. Res. 1, with amendments, and recommended that it be adopted. The amended version of the resolution, as approved by the committee, stipulated that any provision of a treaty that violated the Constitution would be invalid and that the treaty power could be used to establish or modify internal law in the United States only through the enactment of domestic legislation that could have been adopted in the absence of such treaty.

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ORGANIZATION SECTION

A. M. A. HAWAIIAN TOUR

Many physicians and their wives who plan to attend the American Medical Association's annual convention in San Francisco, June 21-25, also plan to take part in the A. M. A. 13-day Hawaiian Holiday Tour, leaving San Francisco by air on the night of Friday, June 25, and returning on the S. S. Lurline, sailing on July 3, and arriving in Los Angeles on July 8. All reservations are being handled by William M. Moloney, General Agent, Room 711, 105 West Adams Street, Chicago (3). Since the Hawaii Medical Association is planning both a scientific and a social program for the visiting physicians and their wives, we have asked Dr. A. S. Hartwell, who has been a delegate from Hawaii to the American Medical Association, to write his impressions of the coming tour. Herewith, he describes what the party from the mainland can expect when it visits Honolulu.—ED.

About 90 years ago Mark Twain, then working in Honolulu as a reporter for the *Sacramento Bee*, described Hawaii as "the loveliest fleet of islands that lies anchored in any ocean."

profusion of exotic tropical plants and flowers. The A. M. A. party will be staying at Waikiki beach, best known of the Hawaiian playgrounds. Waikiki, the beach area of Honolulu, is on Oahu. This is the "entrance" island of the five resort islands, where vacationers arrive from the mainland of the United States. From Oahu visitors fly to Kauai, Maui, Molokai, and Hawaii islands, each of which offers distinctive scenery.

All five of the islands have complete facilities for visitors. Kauai is noted for its greenery and lush tropic vistas. Maui, historic "Valley Isle," has mighty Haleakala, dormant crater large enough to swallow Manhattan. Molokai is a retreat with cliffs of waterfalls and villages where old customs are followed. Hawaii, biggest of the group, has deserts and jungles, active volcanoes, and acres of orchids. Pineapples are a year-around sight on all of the major islands, and canning is a year-around industry, but June to September is the time of the most abundant fruit and the most activity.

When the A. M. A. party drives from the Honolulu airport or Pearl Harbor to the Royal Hawaiian hotel, the doctors and their wives will pass cannery districts tangy with the scent of



The Hawaii Medical Association is planning a *Luau*, or feast, like the one shown above, for the American Medical Association's party to the islands. Guests wear bright Hawaiian apparel, sit on mats spread on the ground, and partake of such Polynesian dishes as pig roasted underground, coconut pudding, fresh pineapple, and poi and watch continuous hula and song entertainment.

Since that time great progress in industry and agriculture has done little to change that definition. Broad highways, beach and hillside homes, and rolling acres of sugar cane and pineapple have not interfered with the natural beauty of Hawaii.

Members of the Hawaii Medical Association are looking forward to the visit by doctors and their wives from the mainland after the A. M. A. meeting in San Francisco. The association, under the chairmanship of Dr. Walter B. Quisenberry of the Department of Health of the Islands, has arranged a panel-type program for June 28 and 29. A big social affair has also been planned. This will be held on Tuesday evening, June 29, at the Niimalu hotel. You will find in Hawaii a truly hospitable people and a welcome that could far exceed anything you have experienced in the past.

The Hawaii Visitors Bureau, as a representative of the people of Hawaii, will be on hand to provide a gala and warm welcome and to assist you while you are here in planning any visits to the other islands in the Hawaiian chain. June, like other months of the year, has a most delightful climate, with a minimum amount of trade wind showers and the complete

simmering pineapple juice. On tours around the island, the visitors will drive for miles through plantations where workers race to get the fragrant pines picked while flavor is at its height. In the world's largest fruit-packing plant in Honolulu they will see dozens of machines shelling 100 pineapples a minute and rows of women and girls trimming the fruit as fast as it is spilled onto their work tables. There is no charge for tours of the plants.

What impresses many visitors is the fact that there are no billboards on the highways and hills. A group of scenic-minded women, the Outdoor Circle, have tabooed the beauty-blighting signs. The party may also see some of the spectacular ceremonial dances of the island Japanese. In cities and villages whole families of kimono-wearing islanders gather in lantern-lit clearings for community Bon dances. Originally purely religious in meaning, the ceremonies descend from the dance of joy of an early Buddhist disciple whose mother was saved from purgatory. Vacationers, drawn to the dance grounds by the drums and wailing oriental flutes, find the dances good camera material.

Water sports, as the teen-agers would say, are "the most." Waikiki is surf-riding headquarters. There is no short cut to expert and trick riding, but often, after only a day's lesson, visitors are able to navigate lying down, and a few surprise themselves by riding a roller standing up.

Needless to say, the food is excellent. From miso soup to lichee nuts, Hawaii has a lot to offer in the food department. Doctors with a taste for the unusual try Samoan baked bread-fruit, Korean jijin mandoo, Japanese namasu, Portuguese sausage, Chinese sin choy, and Hawaiian kalua pig. The latter will be served at one of the parties being planned. Fresh fruit addicts can try papayas, pineapples, mangos, apple-sweet bananas, guavas, and two-pound avocados. Vegetarians will find vegetables they have never heard of. Of course, there are plenty of American dishes. Everywhere in the islands pure food laws and health inspectors safeguard the visitors. A. M. A. gourmets may eat their way along the resort chain with nothing to fear except a growing waist line.

IOWA STATE MEDICAL SOCIETY

The Iowa State Medical and Chirurgical Society, later renamed the Iowa State Medical Society, came into being in 1850 as a direct outgrowth of the third annual session of the American Medical Association in Boston the preceding year. Inspired by the appeal that he heard there, on his return to Iowa Dr. John F. Sanford of Farmington wrote to many physicians urging the organization of a state medical society and later traveled by stage and steamer to several cities to enlist cooperation. As a result, 25 "pioneer practitioners of medicine" met at Burlington, June 19, 1850, and adopted a constitution "for the purpose of harmonizing the profession of medicine, and to promote its usefulness and respectability." The group resolved that "to promote the best interests of the profession, of community and mankind, and also to cultivate the social and scientific relations of its members, together with all the benefits flowing from concert of action, mutual interchange of opinion, and a better understanding of each other's character, and in order to render more effective the great objects of the State Society, we would recommend to our brethren in each county, the formation of a medical society, in each, auxiliary to the State Society." Among the charter members whose interest Dr. Sanford enlisted was Dr. J. C. Hughes of Keokuk, who was affiliated for many years with the College of Physicians and Surgeons of Keokuk, serving as dean of the faculty at the time of his death.

At the second meeting of the society in Fairfield in 1851, Dr. Sanford, reporting on "the causes which contribute to depress the sciences and dignity of the medical profession of Iowa," inveighed against (1) "the practice of admitting young men to the study of medicine without a respectable preliminary education"; (2) the influence of ignorance among members of the profession, which, he stressed, "stands pre-eminent for public virtue, probity and usefulness, yet the individual shortcomings of its members have often excited a popular and erroneous prejudice against it"; and (3) "the practice of attending families by the year," pointing out that "The medical services of an enlightened and benevolent physician are not to be made an article of traffic and bargain. His commerce is with health, the lives and happiness of the human race, and should be as free from purely mercenary influences as his honor and reputation."

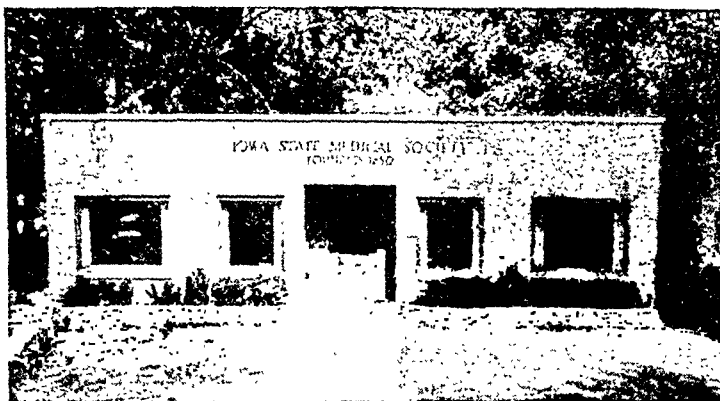
During the Civil War years 1862 and 1863, the society did not convene, but in 1864 a reorganization session was held in Iowa City. In 1867 the attendance at the annual session had grown so large (35 old and new members) that it was decided

to hold a two day meeting. The following year the meeting in Des Moines was referred to in the presidential address as an epoch in its history, the meeting being "the first ever held in the state capitol, and to be regarded as an indication of the realization of our long cherished hopes that the influence of our society is being extended, and that it shall be felt over the entire state, and at each succeeding annual meeting, all parts of the state shall be fully represented." Articles of incorporation were signed at this meeting.

In 1903 at Sioux City the Iowa State Medical Society adopted a new constitution and bylaws, placing it in conformity with the reorganization plan of the American Medical Association, which proposed that "every regular and reputable physician in the United States become a member of his county society, by thus doing, becoming a member of his state society and finally becoming a member of the American Medical Association." The next year at the annual session in Des Moines it was reported that 87 of the 99 county societies had been organized under the new plan; that in 55 counties where societies were not in existence, such organizations had been formed; and that the total membership had reached about 1,500, or a gain in one year of about 100%. Within a few years all county societies (95 single and 2 double county bodies) were organized under it.

According to Dr. Walter L. Biering, in "One Hundred Years of Iowa Medicine," "the establishment of medical schools

in Iowa corresponds with the society organization of the profession." The College of Physicians and Surgeons of Keokuk, in 1847 was moved to Madison, Wis., where it became the Medical Department of the University of Wisconsin. The school then migrated to Rock Island in 1848, to become the College of Physicians and Surgeons of the Upper Mississippi; in 1849 it moved to Davenport and in 1850 came to Keokuk, where it remained for 58 years and where it was referred to



as the Medical Department of the Iowa State University, a designation which it retained until 1870, when the medical school established at Iowa City claimed the title. The first session of the Drake University Medical School opened in Des Moines in October, 1882, and that of the Sioux City Medical College was held in 1887. Through discontinuance and merger, the Keokuk Medical Schools, Sioux City Medical College, and Drake University Medical School have been centered since 1913 in one institution, the College of Medicine of the University of Iowa at Iowa City.

The society, which began in 1850 with 25 members, now has 100 times that number. In 1952, when it moved into its new headquarters, 97% of all eligible physicians in the state were members. Among its current projects are (1) a physician relations department, (2) a weekly television program over WOITV, the educational station at Iowa State College, (3) a manual of health resources available in Iowa, (4) a manual on industrial health for small plants that do not have in-plant physicians, and (5) a series of physician-pharmacist meetings. The society publishes the *Journal of the Iowa State Medical Society*, the first number of which appeared July 1, 1911. Officers of the society included Dr. Ben T. Whitaker, Boone, president; Dr. Robert N. Larimer, Sioux City, president-elect; and Dr. Allan B. Phillips, Des Moines, secretary.

STUDENT A. M. A. NOW HAS 65 CHAPTERS

Chapter strength in the Student American Medical Association reached 65 recently when the students at Georgetown University School of Medicine, Washington, D. C., voted to affiliate. Several other schools are in the process of establishing chapters before SAMA's 4th convention, May 1-3, in Chi-

cago, but at the moment the following medical schools are without representation: Stanford, Howard, George Washington, Johns Hopkins, Harvard, Columbia, Rochester, New York Medical, Cornell, South Carolina, Tennessee, Vanderbilt, Vermont, St. Louis, Washington, and Dartmouth.

FEDERAL MEDICAL LEGISLATION

Philippine Veterans' Service-Connected Disabilities

Senator Johnson (D., Colo.) proposes in S. 2712 to extend the terminal date of service in the Philippine Insurrection from July 15, 1903, to Jan. 1, 1914. Veterans of such service would be eligible to file Philippine veterans' service-connected claims for medical and hospital care. This bill was referred to the Committee on Labor and Public Welfare.

Senators Gillette (D., Iowa), Martin (R., Pa.), and Neely (D., W. Va.), have introduced S. 2681, which provides "that veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection, who are in need of out-patient treatment, shall, upon application for such out-patient treatment by the Veterans' Administration, be deemed, for the purposes of such out-patient treatment, or for emergency hospital care incident to such treatment, to have incurred their disease or disabilities as a direct result of military or naval service, in line of duty, during such war." The bill was referred to the Committee on Labor and Public Welfare.

Congressman Elliott (D., Ala.) has introduced H. R. 7112, which would provide domiciliary medical and hospital treatment by the Veterans Administration for veterans of the Spanish-American War, including the Boxer Rebellion and Philippine Insurrection. This bill was referred to the Committee on Veterans' Affairs.

Social Security Extension

Congressman Reed (R., N. Y.), in H. R. 7199, introduced the administration's bill for extended social security coverage, effective Jan. 1, 1955, to an additional 10 million persons. For 6½ million of these coverage would be on a compulsory basis, including self-employed physicians. This bill is a later version of the administration's bill, H. R. 6812, introduced during the preceding session of the 83rd Congress and reported previously. In addition to covering additional categories, the bill would: (1) raise benefits and increase from \$3,600 to \$4,200 the individual income limit on which the 2% social security tax would apply—a \$12 annual per capita increase—with the ultimate tax being 3½% instead of 3¼%, the employer and the employee each contributing ultimately 3½% by 1970 for this retirement plan, and the self-employed having a proportioned increase in their ultimate tax rate; (2) eliminate the lowest four years of the worker's earnings in computing benefits, whereas under H. R. 6812 the lowest years would be dropped; (3) increase the payments for a minimum of \$25 to \$30 monthly and a maximum family benefit from \$168.75 to \$190; (4) permit retiring persons under 75 to earn \$1,000 a year instead of \$75 a month; and (5) protect the benefit rights if one becomes blind or totally disabled for an extended period by excluding the period of disability in computing the average earnings. The disabilities would have to extend beyond six months and be medically determined. To qualify, the employee must have been covered for at least half of the time in the preceding 10 years. The Secretary of the Department of Health, Education, and Welfare, would contract with the state vocational and rehabilitation agencies to determine disability. State agencies would arrange to obtain the necessary medical information. If they were dissatisfied with the determination, they would have a right to a hearing and judicial review. Disabled persons would be referred to the state rehabilitation agency for indicating rehabilitation services. The bill was referred to the Ways and Means Committee.

College Education for the Disabled

Congressman Elliott (D., Ala.), in H. R. 7113, would provide federal aid to states to set up college level education plans for the physically handicapped persons between 16 and

45. The state plan would have to establish a "schedule of maximum fees for medical and surgical treatment, hospitalization and prosthetic devices." This bill was referred to the Committee on Education and Labor.

Hospital Surveys and Construction

Congressman Wolverton (R., N. J.) has introduced H. R. 7341, the administration's bill to enlarge the scope of the Federal Hospital Survey and Construction Act (Hill-Burton) to include the construction of public and nonprofit diagnostic treatment centers, chronic disease centers, rehabilitation centers, and nursing homes. It authorizes an appropriation of 2 million dollars for state survey need of facilities and 60 million dollars for construction yearly for a three year period. States would be allowed a minimum of \$25,000 for building surveys but would have to match the federal money equally. The public or nonprofit agencies sponsoring the construction project would have to match the federal donation. Grants would be based on the state's population and per capita income as under the present hospital construction act with a minimum allotment per state of \$100,000 for diagnostic treatment and chronic disease hospitals and \$50,000 for nursing homes and rehabilitation centers.

State agencies would recommend and approve all construction, and the act would be administered by the U. S. Public Health Service. The 60 million dollars annually for construction over a three year period, for 1955-1957 would be divided as follows: 20 million dollars for nonprofit diagnostic or treatment centers, 20 million dollars for nonprofit disease hospitals, and 10 million dollars each for nonprofit rehabilitation facilities and nursing homes. This bill was referred to the Interstate and Foreign Commerce Committee.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 86, proposes the enactment of a hospital lien law creating a lien in favor of hospitals for hospital charges for the care and treatment of injuries of persons admitted to the hospitals under certain circumstances. H. 91, proposes the creation of an Arizona commission on alcoholism to, among other things, initiate, develop, and administer a program for the study, treatment, and rehabilitation of resident alcoholics. H. 138 and S. 42, propose to authorize any person who may otherwise validly make a will to, by will or otherwise, dispose of the whole or any part of his or her body to a teaching institution, university, college, state department of health, facility designated or maintained by the anatomy board of Arizona, legally licensed hospital or any other agency or commission operating a tissue, eye, bone, cartilage, or blood bank or any other bank of a similar kind designated for the purposes of medical science and the rehabilitation of the maimed. H. 142, to amend the law relating to chiropractic, proposes among other things that licentiates of the chiropractic board may not practice physical therapy or naturopathy. The proposal also requires applicants for license to be citizens of the United States.

Kentucky

Bills Introduced.—H. 48, proposes to authorize the board of trustees of the University of Kentucky to employ a qualified person who shall formulate all necessary plans for the establishment of a medical school at the university. H. 91 and S. 63, propose the creation of a Kentucky commission on alcoholism to study the problems of alcoholism within the state, to formulate and carry out programs of education designed to curb the excessive use of alcohol and reduce the number of inebriates, to establish such facilities and employ such personnel as are necessary and available for the diagnosis and rehabilitation of inebriates, to accept for examination, diagnosis, guidance, and treatment any persons coming to it of its own volition for advice and guidance. H. 149, proposes the enactment of a bill designed to provide effective control of the spread of communicable tuberculosis. H. 151, proposes the enactment of a bill to provide for the effective control of the spread of rabies.

Maryland

Bill Introduced.—H. 3, proposes amendments to the medical practice act which in effect eliminate the references in the present Act to the Maryland State Homeopathic Medical Society and abolishing the Homeopathic Examining Board.

Massachusetts

Bills Introduced.—H. 948, proposes an act to prohibit the attendance in schools of children suffering from tuberculosis in a communicable form and providing for periodic examination of school children. H. 1540, proposes the creation of a special commission to make an investigation and study relative to the desirability and feasibility of the acquisition by the commonwealth of certain hospitals, property of the federal government,

which have been closed. H. 1639, proposes the creation and establishment of a psychiatric nursing school under the management and control of the trustees of the University of Massachusetts. H. 2279, proposes the creation of a special unpaid commission to make a study and investigation relative to the establishment of a state medical and dental school under the jurisdiction of the University of Massachusetts. H. 1997, proposes to make it unlawful for any hospital doing business in the State to charge more than 25 cents per page for a hospital record. H. 2102, proposes to authorize the department of education and the department of mental health to make a study and investigation relative to the advisability of establishing compulsory mental health programs in the public schools. S. 612, proposes the creation of a special commission to make an investigation relative to the sale, furnishing, delivery, exchange, and use of narcotic drugs within the commonwealth.

Bills Enacted.—H. 48, has become Chapter 44 of the Laws of 1954. It provides that a physical examination and treatment by a registered physician or surgeon acting under the authority of the department of public health upon the person of a minor who voluntarily appears therefor shall not constitute an assault or an assault and battery upon such minor.

Michigan

Bills Introduced.—H. 23, proposes to create an office of health affairs which shall consist of a bureau of hospital survey and construction, a bureau of alcoholism, and such other bureaus or divisions as may be deemed desirable or necessary. H. 164, to amend the workmen's compensation act, proposes to require employers to furnish necessary dental care to injured employees. H. 184, proposes the enactment of a hospital licensing act. H. 205, to amend the medical practice act relating to the granting of temporary licenses, authorizes the granting of such licenses under certain conditions to doctors of medicine who have entered the United States under any act of Congress and are residents of the state prior to Jan. 1, 1952. S. 1082, to amend the basic science act provisions relating to the circumstances under which the board may waive the examination, proposes that such examinations may be waived when the applicant is of good moral character and possesses a high school education or its equivalent, when he has passed in one other state or territory a written examination in the basic sciences given by the official basic science board of the other state and the examination and passing requirements, at the time of passage, were substantially equal to those required by the basic science board of Michigan, and upon compliance with certain other provisions. S. 1097, proposes that no person who, while a patient at any state hospital, receives psychiatric shock treatment, and as a result thereof suffers physical or mental injury or death, shall thereafter have a cause of action for damages against any officer, employee, physician, or technician of such hospital unless injury or death shall have resulted from the gross and wanton negligence of such officer, employee, physician, or technician giving or supervising the giving of such shock treatment.

New York

Bills Introduced.—A.R. 8, proposes the creation of a joint legislative committee to make a comprehensive study of existing law dealing with the illicit use of drugs and to make recommendations for remedial legislation relating thereto. A. 4 and S. 11, propose the enactment of a community mental health services act. A. 182, proposes to require applicants for an operator's or chauffeur's license to prove that they are in good mental and physical health and free from any heart or cardiovascular disease and any mental defect or disorder, such proof to be based upon a certificate of a duly licensed physician. A. 189, to amend the education law, proposes to require boards of education to provide adequate health services for pupils attending schools who are 15 years of age and over and whose parents consent thereto. A. 290, to amend the vehicle and traffic law, proposes to require applicants for an operator's or chauffeur's license to pass such eye tests as will satisfy the commissioner that he is competent to operate a motor vehicle. A. 326, to amend the penal code, proposes that a person who shall falsely make, alter, forge, or counterfeit a doctor's prescription shall be guilty of forgery. A. 345 and S. 281, to amend the tax law, propose that a taxpayer who is a duly licensed physician and who is on the staff of, and actually performs services as often as twice monthly at, a free clinic, dispensary or outpatient unit operated by or affiliated with a hospital maintained in whole or part by a municipality of this state, shall be granted an additional personal exemption of \$2,500. A. 452, proposes the creation of a state board of examiners for x-ray technicians and defines an x-ray technician as one who performs professional service requiring the application of principles of x-ray, such as responsible supervision of a patient requiring skillful application of technical procedures and the accurate recording of facts, and carrying out of procedures as prescribed by a licensed physician or dentist. A. 457, A. 1572 and S. 351, propose to prohibit any person from obtaining or attempting to obtain a barbiturate drug or preparation by means of fraud, deceit, misrepresentation, concealment, or the like. A. 731 and S. 772, to amend the insurance law, propose that no membership corporation or consumers' cooperative stock corporation which publicly offers a prepayment medical care plan, shall limit its subscribers' right to be cared for by any duly licensed physician or dentist or partnership of physicians or dentists. A. 733, to amend the education law relating to disciplinary proceedings against practitioners of medicine, proposes that a vote of eight members of the committee, rather than a unanimous vote, shall be sufficient to find a practitioner guilty of charges. A. 740, to amend the workmen's compensation law, proposes that if an employer or insurance carrier fails to submit an arbitration agreement to the physician or hospital which renders services to the injured employee, the physician or hospital may force their claims for services in an action at law. A. 742, A. 796 and S. 631, to amend the education law relating

to the practice of physiotherapy, provide for the granting of certain temporary licenses to physiotherapists which shall be good for a period of six months for persons practicing physiotherapy in a hospital or in a public health agency. A. 801 and S. 1002, to amend the education law relating to conditional admission for medical licensing examination, add bacteriology to the list of subjects which shall be covered by the examination of applicants 19 years of age who have completed two years of medical study. A. 813, to amend the mental health law, authorizes the department of mental hygiene to conduct mental health research programs including projects involving research, investigations, experiments, and demonstrations relating to the cause, diagnosis, treatment, cure, and prevention or control of mental illness and mental deficiency. A. 814, proposes the creation of a temporary state commission to make an investigation and study of the problem of the care and protection of patients in mental hospitals and of the use of jackets and other mechanical restraints in the treatment of such patients and of the techniques and practices presently employed for such purpose. A. 902 and S. 695, to amend the social welfare law relating to the definition of a dispensary, propose to except therefrom the department of hospitals of the city of New York and any hospital or institution operated by such department. A. 1118 and S. 751, to amend the vehicle and traffic law, propose that applicants for a chauffeur's or operator's license shall be required to pass eye tests satisfactory to the commissioner or file a certificate from a duly licensed physician or optometrist attesting that the applicant has been examined as to his eyesight and found competent to operate a motor vehicle. A. 1189 and S. 910, propose the creation of a temporary state commission to undertake and complete a thorough study of the feasibility of requiring each resident of the state to take an annual health examination. A. 1230, to amend the insurance law, proposes that non-profit medical and dental indemnity and hospital service corporations shall furnish medical and dental care by duly licensed physicians and dentists of the subscriber's choice whether such persons are designated or approved by the corporation or not. A. 1231 and S. 1254, to amend the insurance law, propose that in any case in which the state or a political subdivision of the state contributes part or all of the cost of medical or dental expense indemnity or hospital service, the subscriber shall have the right to select for such expense indemnity or service any non-profit medical care plan authorized and approved by the department of insurance. A. 1235, to amend the medical practice act relating to the revocation of licenses for granting rebates or splitting fees, proposes that such provision shall not apply where the physician has participated in rendering of medical and/or surgical care, in which event such participation shall be certified to by the physician and the fee therefor be commensurate with the services rendered, and further, that the patient to whom such medical and/or surgical care shall have been rendered shall be advised of the participation and of the distribution of the fee therefor. A. 1381, to amend the insurance law relating to medical expense indemnity corporations, proposes to authorize such corporations to furnish podiatric care through duly licensed podiatrists. S.R. 32, proposes the creation of a committee to make a comprehensive investigation of the policies, acts, methods, practices, services, and charges of persons, firms, associations and corporations owning, operating, conducting, and maintaining hospitals, clinics and sanitariums and to investigate all complaints of the people against hospitals, clinics, and sanitariums. S. 383, to amend the vehicle and traffic law, proposes to require applicants for operator's and chauffeur's licenses to pass such eye tests as will indicate that he is competent to operate a motor vehicle, or shall present a certificate from a duly licensed physician or optometrist that the applicant has been examined as to his eyesight and found competent to operate a motor vehicle. S. 514, proposes the creation of a consumer's bureau in the state department of health for the purpose of protecting the consumer in the manufacture and sale of adulterated or misrepresented foods, drugs, cosmetics, or health devices. S. 611, proposes to authorize hospitals supported in whole or part by public funds to employ physicians and surgeons under a contract or salary arrangement for the medical diagnosis and/or the treatment of patients only when such diagnosis and treatment is a public charge. In all other cases such medical diagnosis and/or treatment shall be rendered to patients in the hospital independently of other hospital charges and under contractual relationship between the patient and the physician or physicians. S. 914, proposes to make it unlawful for the trustees, officers and managers of any nonsectarian hospital, sanitarium, or other institution to refuse to employ a physician, surgeon, intern, or nurse or to refuse to allow any physician, surgeon, intern, or nurse to gain admission to and use the facilities of the hospital solely because of the race, creed, color, or religion of such physician, surgeon, intern, or nurse. S. 1069, to amend the public health law, proposes to add regulations relating to the care, treatment, guidance, and rehabilitation of narcotic drug users. S. 1291, proposes that every municipal corporation shall assume the liability of resident physicians and interns, as well as physicians, who render medical services to persons without receiving compensation from such person, in public institutions maintained in whole or in part by the municipal corporation, for damages for personal injuries alleged to have been sustained by such person. S. 1302, proposes to make it unlawful for any person to possess or maintain a vending machine from which are sold or offered for sale drugs, medicines, or appliances intended or having special utility for the prevention of venereal diseases. S. 1479, proposes the creation of a temporary state commission to make a comprehensive study and survey of the state laws relating to the licensure of professional practices and including laws relating to optometry, dentistry, pharmacy, nursing, podiatry, osteopathy, and physiotherapy and to consider the necessity or desirability of revising the present laws to require the licensing of other practices related to human health and physical or mental well-being.

MEDICAL NEWS

CALIFORNIA

Radiological Conference.—The sixth annual midwinter Radiological Conference, sponsored by the Los Angeles Radiological Society, will be held at the Ambassador Hotel, Los Angeles, Feb. 20-21. Out-of-state speakers will include Drs. Eugene P. Pendergrass, Philadelphia, Ursus V. Portmann, Tucson, Ariz., Marcy L. Sussman, Phoenix, Ariz., and Frederic E. Templeton, Seattle. A banquet preceded by cocktails will be held at the Ambassador Hotel, Feb. 20. Conference reservations may be made through Dr. Harold P. Tompkins, 658 S. Westlake Ave., Los Angeles 57. The conference fee is \$20, and the dinner will be \$7.50 per plate. Courtesy cards for the conference are available to radiological residents and radiologists in military service by preregistration.

Postgraduate Convention at Los Angeles.—The Alumni Postgraduate Convention of the College of Medical Evangelists, Los Angeles, will meet at the Biltmore Hotel, Los Angeles, Feb. 23-25. The meeting will be preceded by two days of refresher courses at the White Memorial Hospital on the Los Angeles campus. Daily panel discussions at 11 a. m. will be preceded by lectures as follows: Tuesday, "Management of Hip Fractures in the Aged" by Dr. Harold B. Boyd, Memphis, Tenn., 1953 president of the American Academy of Orthopedic Surgeons; "Present Status of Antibiotics in the Armed Forces" by Major Gen. George E. Armstrong, Washington, D. C., Surgeon General, U. S. Army; and "Appraisal of Use of Modern Antibiotics in Urology" by Dr. Louis M. Orr, Orlando, Fla., will precede the panel "A Second Look at the Miracle Drugs." Wednesday, "Proctologic Problems Which Should be Managed in the Hospital" by Dr. Louis A. Buie, Rochester, Minn.; "Diagnosis and Management of Carcinoma of the Female Generative Organs" by Dr. Walter J. Reich, Chicago; and "Radiation Treatment of Cancer of the Larynx" by Dr. Hugh F. Hare, Los Angeles, will precede a panel on problems in cancer management. Thursday a panel on postoperative medical complications will be preceded by the following presentations: "Present Status of Dietary vs. Endogenous Cholesterol in Pathogenesis of Atheromatous Disease" by Dr. William Dock, Brooklyn, and "Effects of Malposition in Anesthesia" by Col. Harvey C. Slocum. Round-table luncheons led by the convention speakers will be held Tuesday and Thursday. Other speakers and their first presentations include: Dr. Lester R. Dragstedt, Chicago, "New Light on Physiology of Gastric Secretion and Its Relation to Peptic Ulcer," Dr. Harrison S. Evans, Worthington, Ohio, "Practical Measures for the Management of Psychiatric Problems in General Practice," and Dr. Denis J. Browne, London, England, "Early Diagnosis and Treatment of Orthopedic Conditions in Children." Preregistration forms and reservations for the banquet, Wednesday, should be requested from the Managing Director, Alumni Postgraduate Convention, 316 N. Bailey St., Los Angeles 33.

DISTRICT OF COLUMBIA

Psychiatric Jurisprudence.—The Washington School of Psychiatry is presenting eight lectures on psychiatric jurisprudence by Dr. Winfred Overholser, superintendent of Saint Elizabeths Hospital. These lectures, which began Feb. 1 and are held on Mondays, 8-10 p. m., cover the following topics: (1) requisites of sound mental examination; (2) wills and deeds, torts, credibility of witnesses; (3) divorce and annulment, commitment laws; (4) criminal litigation; (5) establishment of responsibility; (6) opinion evidence; (7) doctors in court; and (8) existing interrelations and possible methods of improvement. Information may be obtained from the Washington School of Psychiatry, 1711 Rhode Island Ave., N. W., Washington 6, D. C., telephone STerling 3-4373.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

GEORGIA

Society News.—At the regular meeting of the South Georgia Medical Society the following officers were elected: Dr. Robert E. Perry Jr., Valdosta, president; Dr. Jesse L. Parrott, Hohira, vice-president; and Dr. Joseph H. Brannen, Valdosta, secretary-treasurer.

Graduate Medical Assembly.—The Atlanta Graduate Medical Assembly will be held at the Biltmore Hotel, Feb. 22-24. The following symposiums will be presented (3:30-5 p. m.): Monday, "Isotopes, in Diagnosis and Therapy"; Tuesday, "Cardiology" and "Obstetrics and Gynecology" (the latter at the Academy of Medicine); Wednesday, "Gastroenterology." Guest speakers and their first presentations include:

Oscar T. Clagett, Rochester, Minn., Surgical Treatment of Tumors of the Mediastinum.

Virgil S. Counseller, Rochester, Minn., Clinical and Surgical Problems Encountered in Vesicovaginal Fistula.

Elmer Belt, Los Angeles, The Urgent Need for Early Recognition of Cancer of the Prostate.

Charles A. Doan, Columbus, Ohio, The Lymphomata—Differential Recognition and Management.

Allan C. Barnes, Columbus, Ohio, Experimental Nonsurgical Therapy of the Pelvic Malignancy.

Julius W. McCall, Cleveland, Diseases of the Larynx and Management.

Dorothy H. Andersen, New York, Celiac Disease and Starch Intolerance.

R. Gordon Douglas, New York, Late Bleeding in Pregnancy.

Robert L. Sanders, Memphis, Tenn., Surgery of the Upper G. I. Tract.

Philip J. Hodes, Philadelphia, Roentgen Manifestations of Pancreatic-ampullary Carcinoma.

Dr. Harold P. McDonald, Atlanta, is chairman of the session, and Dr. Evert A. Bancker, Atlanta, has been appointed chairman of the 1955 meeting.

ILLINOIS

Society News.—The Illinois chapter of the American College of Chest Physicians held a joint meeting with the Chicago Roentgen Society at the Sheraton Hotel, Chicago, Feb. 11. Dr. Leo G. Rigler, professor of radiology, University of Minnesota Medical School, Minneapolis, discussed "The Roentgenologic Aspects of Diseases of the Pulmonary Vessels."

Clinics for Crippled Children.—The University of Illinois Division of Services for Crippled Children has scheduled the following clinics, which will be held in cooperation with local medical and health organizations:

Feb. 23, Effingham (rheumatic fever), Douglas Township Building; Peoria, St. Francis Hospital.

Feb. 24, Elgin, Sherman Hospital; Springfield (cerebral palsy), Memorial Hospital.

Feb. 25, Anna, City Hospital; Bloomington, St. Joseph's Hospital.

Feb. 26, Chicago Heights (rheumatic fever), St. James Hospital.

Physicians may refer or bring to a convenient clinic any child for whom examination or consultative services are desired.

Chicago

Seminars on Alcoholism.—Portal House of the Chicago Committee on Alcoholism is presenting a series of seminars on alcoholism in the Chicago Community Fund Conference Rooms, 123 W. Madison St., 7:30-9:30 p. m. on Tuesdays. "Problems of Understanding the Alcoholic" was presented Feb. 16; "Helping the Alcoholic" will be presented Feb. 23; "Community Action of Alcoholism" March 2; and "The Alcoholic and the Courts," March 9.

Society News.—At the meeting of the Chicago Society of Physical Medicine and Rehabilitation, Feb. 24, 8 p. m., at Stritch School of Medicine of Loyola University, 706 S. Wolcott St., Dr. Paul A. Nelson of the Cleveland Clinic will discuss "Foundation of Ultrasonics in Medicine" and Dr. Otto F. Hug, instructor in pathology at the Max Planck Institute for Biophysics of Frankfurt-on-the-Main, Germany, will discuss "Effects of Ultrasound on Tissues."

Program on Cardiac Surgery.—Dr. Walter S. Priest, chairman, scientific section, Chicago Heart Association, will preside at a meeting Feb. 23, 8 p. m., in the Chicago Academy of Sciences, 2001 N. Clark St., when the following program on long-term results of cardiac surgery will be presented, with Dr. James A. Campbell as moderator:

Postoperative Observations on Patients with Tetralogy of Fallot, Willis J. Potts and Edward J. Berman.

Postoperative Observations on Patients with Isolated Pulmonary Stenosis, Stanley Gibson.

Coarctation of the Aorta, William E. Adams.

Mitral Stenosis. Influence of Preoperative Selection, Ormand C. Julian.

IOWA

Program on Surgical Types of Heart Disease.—A program on surgical types of heart disease will be presented Feb. 20-21 at the Art Center, Grand Ave. at Polk Blvd., Des Moines, under the auspices of the department of internal medicine at Iowa Methodist Hospital, Des Moines. Physicians are cordially invited. A clinic will be held at the Art Center Sunday morning. The Saturday program includes:

David G. Pugh, Rochester, Minn., Use of X-Ray and Fluoroscopy in Diagnosis of Heart Disease.

O. Henry Janton, Philadelphia, Selection of Patients for Mitral Valve Surgery.

Francis F. Rosenbaum, Milwaukee, Use of Electrocardiograms in the Diagnosis of Surgical Heart Disease.

S. Gilbert Blount Jr., Denver, Diagnosis of Congenital Heart Disease from the Clinical Point of View.

KANSAS

Hearing and Speech Conference.—A short hearing and speech conference will be held at the University of Kansas Medical Center, Kansas City, Feb. 26-27, to bring together persons working in this field or vitally interested in some of the problems. The program is open to school administrators, physicians, psychologists, public health nurses, speech therapists, occupational and physical therapists, teachers, and others interested in the education of children with hearing and speech handicaps.

KENTUCKY

Today's Health.—On request of the Woman's Auxiliary, the council of the Kentucky State Medical Association has agreed that a subscription to *Today's Health* be presented to each of the 93 bookmobiles that will travel throughout the state, lending reading material to Kentuckians who do not have adequate library facilities.

Auxiliary's Christmas Gift.—A new station wagon was presented as a Christmas gift to the Kentucky chapter of the American Cancer Society by the Woman's Auxiliary to the Kentucky State Medical Association in a special ceremony, Dec. 17, 1953, in front of the KSMA headquarters office, Louisville. Money for the new station wagon, the second that the Kentucky physicians' wives have given to the cancer group, was contributed by the 24 local auxiliary chapters throughout the state.

MARYLAND

Conference on Vitamin B₁₂.—"The Clinical Aspects of Vitamin B₁₂" will be presented at 9 a. m., Feb. 20, at the Johns Hopkins University School of Hygiene and Public Health, 615 N. Wolfe St., Baltimore. Drs. Norman H. Jolliffe, New York, Daniel F. Downing, Philadelphia, and Margaret Merrell, Sc.D., Baltimore, will serve as discussants for "Vitamin B₁₂ and the Growth of Children" (chairman, Bacon F. Chow, Ph.D., Baltimore). "The Absorption of Vitamin B₁₂" will be discussed by Drs. William B. Castle, Boston, Frank H. Bethell, Ann Arbor, Mich., Julius R. Krevans, Baltimore, Robert F. Schilling, Madison, Wis., and others, with C. Lockard Conley, Baltimore, as chairman for this topic and for "Other Clinical Uses of B₁₂" which will be discussed by Dr. Bernard Becker, Baltimore, and others. A summary of highlights of the conference will be given by Dr. Robert S. Goodhart, New York. Attendance at these informal conferences will be by invitation only.

MASSACHUSETTS

House Officers' Lecture.—The House Officers' Association of New England Center Hospital, Boston, announces that on Feb. 23 at 7 p. m. Dr. Alexander B. Gutman, professor of medicine, Columbia University College of Physicians and Surgeons, New York, will discuss "Primary and Secondary Gout" in the Stearns Auditorium of New England Center Hospital. All interested persons are invited.

Medicolegal Pitfalls.—Judge Frank J. Donahue, Massachusetts Superior Court, will serve as moderator for the session on legal pitfalls in medical practice that will be presented by the Norfolk District of the Massachusetts Medical Society in the Boston Medical Library (Ware Hall), 8 The Fenway, Feb. 23, 8:15 p. m. Judge Donahue will discuss malpractice; Mr. Eugene H. Giroux, chairman, Massachusetts Division of Industrial Accidents, how the physician should conduct himself before the industrial accident board; and attorney John M. Russell, "Testimony of the Attending Physician and the Expert."

MICHIGAN

Lecture on Poisonous Plants.—Charles R. Dawson, Ph.D., of Columbia University will open the spring lecture series on "Frontiers in Chemistry" at Wayne University, Detroit, with a discussion of "The Toxic Principle of Poison Ivy and Related Plants" at 7:15 p. m., Feb. 22.

Bloodmobile Service Discontinued.—The state department of health announces that its bloodmobile service will be discontinued Feb. 26 and that fresh blood will thereafter be collected entirely by local blood banks and the American National Red Cross regional blood centers. Sources of blood for the manufacture of blood derivatives by the department's laboratories are now considered sufficient to supply the needs of Michigan's people without the bloodmobile service. The change was made possible because of the development of processes in the laboratories for recovering gamma globulin and albumin from human placentas. The department, which now has working agreements with 22 hospitals to supply it with about 50,000 placentas a year, plans to enlarge this program. Other products will be made from surplus and outdated blood furnished the laboratories by 61 blood banks. Dr. Albert E. Heustis, Lansing, health commissioner, points out that after March 1 the Michigan Department of Health will not be able to provide emergency supplies of whole blood as it has in the past and urges donors to step up their support of their local blood banks so that an adequate supply of whole blood may be available to them at all times.

MISSOURI

Annual Loeb Lecture.—The Alpha Pi chapter of the Phi Delta Epsilon medical fraternity will sponsor the annual Hanau W. Loeb lecture at the St. Louis University School of Medicine Feb. 25, 5 p. m. Dr. Albert B. Sabin, professor of research pediatrics, Children's Hospital Research Foundation, Cincinnati, will present "Experimental Production of Avirulent Variants of Poliomyelitis Virus." Dr. Sabin is the author of numerous papers on pneumococcus infection, infantile paralysis, virus diseases, and other topics relating to infectious diseases.

NEW JERSEY

Chest Physicians Meet in Jersey City.—The New Jersey chapter of the American College of Chest Physicians, at its meeting, Feb. 23, 8:30 p. m., at Berthold S. Pollak Hospital for Chest Diseases, 100 Clifton Place, Jersey City, will discuss "Pulmonary Emphysema and Cor Pulmonale." Etiology, pathogenesis, physiology, diagnosis, and medical management will be presented by Drs. Rejane M. Harvey, associate in medicine, and M. Irene Ferrer, assistant professor of clinical medicine, Columbia University College of Physicians and Surgeons, New York, and surgical considerations by Dr. Ross J. Simpson, assistant attending thoracic surgeon, Berthold S. Pollak Hospital for Chest Diseases.

Course in Forensic Medicine.—The Passaic County Medical Society is sponsoring six monthly lectures covering workmen's compensation disputes, negligence actions, criminal matters, and other topics pertinent to forensic medicine. The course, which is held on Wednesday evenings, 8 p. m., at the medical society building, 625 Broadway, Paterson, began with "The Heart in Industry" by Dr. Cary Eggleston, New York, and will include:

Feb. 24, Ruptured Intervertebral Disks, David M. Bosworth, New York.
 March 24, The Arthritides, Roy R. Schubert, Paterson.
 April 28, Occupational Skin Diseases, Louis Tulipan, New York.
 May 19, The Neuropsychiatric Laborer, speaker to be announced.
 June 23, Pitfalls in Expert Testimony, Mr. Arthur Mead.

The fee for the course is \$5.

Meeting on Maternal Fatalities.—The Obstetrics and Gynecology Section of the Academy of Medicine of New Jersey will meet with the Advisory Committee on Maternal Welfare of the Medical Society of New Jersey at the office of the society, 315 W. State St., Trenton, Feb. 25, 8:30 p. m. Dr. John D. Preece will serve as moderator for "Presentation of Maternal Fatalities" by Drs. Samuel A. Cosgrove, Jersey City, Robert A. MacKenzie, Asbury Park, and Philip F. Williams, Philadelphia. This meeting will follow a meeting of the Field Physicians and State Society Advisory Committee on Maternal Welfare at 3 p. m. Physicians interested in attending an informal "Dutch treat" dinner between these two meetings are requested to communicate with Dr. Preece at the office of the Medical Society of New Jersey.

NEW YORK

Hospital News.—The 16th in the series of Dr. Henry Joachim lectures on the application of fundamental sciences in medicine will be delivered by Dr. Abraham White, associate dean, Albert Einstein College of Medicine of Yeshiva University, who will present "Aspects of Pituitary-Adrenal Cortical Physiology," Feb. 22, 8:30 p. m. in the Auditorium, Freeman Pavilion, Jewish Sanitarium and Hospital for Chronic Diseases, 86 E. 49th St., Brooklyn. At the same time and place on Feb. 25, Dr. Saul B. Gusberg, assistant professor of gynecology, Columbia University College of Physicians and Surgeons, New York, will speak on the developmental concept of cervical cancer.

Circuit Riding Teams for Child Guidance Centers.—A new child guidance clinic center, recently opened by the State Department of Mental Hygiene in Rochester, is the 12th such center maintained by the department, each staffed by a traveling clinic team. A total of 59 New York State communities receive regularly scheduled service from these centers. Provision has been made in state appropriations for the addition of two more clinic teams, which are to be appointed as soon as the professional personnel can be obtained. Children, referred by school personnel, courts, social agencies, or by parents, are studied and treated for habit disorders, conduct disturbances, neurotic behavior, and personality difficulties, as well as for early symptoms of psychosis. Dr. Donald W. Cohen, chief child guidance psychiatrist, directs the department's clinical program. Serving in rotation with psychiatric social workers and a clinical psychologist on the new traveling team operating from the Rochester center are Drs. Donald J. McIntosh and Oscar K. Diamond of the Willard State Hospital staff, who will conduct the clinic every Monday at Canandaigua. On Tuesdays Dr. James M. Murphy and Dr. Harold A. O'Connor, both of Willard, will hold a clinic at Seneca Falls. A clinic will be conducted at Albion every Wednesday by Dr. Guy M. Walters of Rochester State Hospital. On Thursdays Drs. Edward D. Stevenson, Wassaic, and Harry Feldman, New York City, will hold a clinic at Lyons.

New York City

Rehabilitation Case Conference.—An unrehearsed rehabilitation case conference will be presented by the staff of the Institute for the Crippled and Disabled at the meeting of the New York chapter, National Rehabilitation Association, Feb. 25, 7 p. m., 23rd St. at First Ave., New York.

Meetings on Cancer.—On Feb. 24, 5 p. m., the New York Academy of Medicine will present "Cancer Detection" by Drs. Cornelius P. Rhoads, Henry T. Randall, Emerson Day, George N. Papanicolaou, and Genevieve M. Bader. At the same time, March 3, Dr. Hayes Martin will discuss "Head and Neck Cancer."

The Goldforb Lecture.—This lectureship, sponsored for the second year by students and colleagues of Abraham J. Goldforb, Ph.D., will be held Feb. 25 at 8:30 p. m. in the New York Academy of Medicine Building, 5th Ave. at 103rd St. Vincent du Vigneaud, Ph.D., professor of biochemistry, Cornell University Medical School, will speak on the chemical nature and biological activity of the hormones of the posterior pituitary. Members of the scientific professions are invited.

Golden Jubilee of Clinical Society.—On Feb. 20 at the Waldorf-Astoria Hotel, the Clinical Society of the New York Polyclinic Medical School and Hospital will celebrate its 50th anniversary. Dr. Orrin Sage Wightman, one of the founders of the society, will be guest of honor. Dr. Wightman, who was formerly professor of internal medicine of the New York Polyclinic Medical School and Hospital and a member of its board of trustees, is a past president of the New York County and New York state medical societies and is presently chairman of the board of trustees of the New York Academy of Medicine.

OHIO

Aaron Brown Lecture.—Chi chapter of Phi Delta Epsilon fraternity, Ohio State University College of Medicine, Columbus, will sponsor the annual Aaron Brown lecture, Feb. 23, 8 p. m., at the Ohio State University Health Center. Dr. Walter L. Palmer, University of Chicago School of Medicine, will discuss "Recent Advances in the Interpretation of Gastric Analysis." An early afternoon gastroenterology seminar or clinic will also be presented.

OKLAHOMA

Society News.—At the meeting of the Tulsa County Medical Society, Feb. 22, 8 p. m. at The Mayo, Dr. W. James Gardner of Cleveland will discuss "Relief of Trigeminal Neuralgia by Decompression of the Sensory Root."

WASHINGTON

Medical Aspects of Civil Disaster.—A symposium on the medical aspects of civil disaster is scheduled at University of Washington, Seattle, Feb. 20. Dr. R. L. Larsen, Seattle, civil defense coordinator, will serve as moderator for the following program, which will be presented at 9:35 a. m. after a briefing on the present status of civil defense in Seattle, King County, and Washington:

- Shock—Its Prevention, Early Recognition and Treatment, David Metheny, Seattle.
- Use of Blood, Plasma and Plasma Expanders. Blood Grouping, Matching and Transfusion in Mass Treatment, Quinn B. DeMarsh, Seattle.
- Detection of Radiation—Early Diagnosis and Treatment of Radiation Illness, Simeon T. Cantril, Seattle.
- Mass Treatment of Thermal Burns, Henry N. Harkins, Seattle.
- Treatment of Infant and Child Casualties, Frederic C. Moll, Seattle.
- Approach to Treatment of Severe Multiple Injuries, Edward B. Speir, Seattle.
- Psychiatric Aspects of Disaster; Prevention and Treatment of Panic, William Y. Baker, Seattle.
- Evaluation of Chemical Warfare Agents and Treatment of Casualties, Frank J. Leibly, Seattle.
- Biological and Bacteriological Warfare, Alfred Lazarus, Ph.D., Seattle.

WEST VIRGINIA

Dr. Ogden Honored.—Dr. Chester R. Ogden's 50 years of service to Clarksburg were celebrated Nov. 6, 1953, when the Lions Club surprised him with a luncheon on the eve of his 80th birthday. Dr. Ogden has served as president of the Harrison County and West Virginia State Medical associations and from 1912 to 1920 was a member of the A. M. A. House of Delegates.

CANAL ZONE

50 Year Jubilee in Panama.—The Inter-American Medical Convention, which will be held at the El Panama Hotel, Panama City, Panama, March 24-26, under the sponsorship of the Medical Association of the Isthmian Canal Zone, will commemorate both the 50th year of Panamanian independence and the 50th year of the advent of American medicine in the Canal Zone with the appearance of General William C. Gorgas in 1904. The meeting, which will be attended by physicians from North, Central, and South America, will be opened at 9 a. m. Wednesday by His Excellency, Col. Jose Antonio Remon Cantera, president, Republic of Panama, after which Dr. Irving J. Strumpf, Balboa, president, Medical Association of the Isthmian Canal Zone, will deliver the address of welcome. Col. Joseph R. Shaeffer of the U. S. Army will present "Current Status of Plasma Expanders"; Dr. Bernardino Gonzalez-Ruiz, chief surgeon, Hospital Santo Tomas, "Experiences in the Use of Largactil—A New Anesthetic Agent"; and Dr. Oswald S. Lowsley, New York, will speak. From 12 noon to 1 p. m. President Remon will receive visitors at the Presidencia. The following program will be presented from 2 to 4 p. m.:

Francis P. McCarthy, Boston, Diseases of the Oral Cavity.

Robison D. Harley, Philadelphia, Topical Diagnosis of Third and Sixth Cranial Nerve Lesions.

Samuel Thompson, New York, Technique for Use of Magnesium Silicate in Surgical Therapy of Coronary Artery Disease.

Thursday will be devoted to a panel on tropical medicine, with Dr. Edward I. Salisbury, United Fruit Company, as moderator in the morning and Dr. Benjamin H. Kean, New York, as moderator for the afternoon session, participating with Drs. Herbert C. Clark, director, Gorgas Memorial Laboratory of Tropical Medicine; Dr. Mark T. Hoekenga, chief of medical service, La Lima Hospital, Honduras; Dr. Carl Johnson, pathologist, Board of Health Laboratory and Health Officer, Panama; and Dr. Harold W. Brown, dean, School of Public Health, Columbia University, New York. Friday morning Dr. LeRoy Goodman, assistant professor of obstetrics, gynecology, and oncology, University of Kansas Medical Center, Kansas City, will discuss "Newer Concepts in the Causes of Bleeding in the Female," and presentations will be made by Drs. Isidor S. Ravdin, University of Pennsylvania School of Medicine, Philadelphia, and Mortimer N. Hyams, New York University-Bellevue Hospital Medical Center. An elaborate program of tours and entertainment for physicians and their wives has been planned. There is no charge for registration or attendance at the convention. Information may be obtained from the secretary, Medical Association of the Isthmian Canal Zone, Box "A," Balboa Heights, Canal Zone.

GENERAL

Physical Medicine Archives on Microfilm.—A microfilm edition of the *Archives of Physical Medicine and Rehabilitation* has been made available to libraries. The microfilm edition will be distributed at the end of the volume year. Information may be obtained from University Microfilms, 313 N. First St., Ann Arbor, Mich.

New England Diabetes Association.—A meeting of the New England Diabetes Association will be held at Hanover, N. H., Feb. 26-27. Dr. Israel M. Rabinowitch, Montreal, Canada, will speak Friday evening, 8 p. m. A clinical conference at the Veterans Administration Center, White River Junction, Vt., Saturday, 9:30 a. m., is open to interested persons.

Surgeons Meet in Reno.—The American College of Surgeons extends an invitation to all physicians to attend its sectional meeting at the Riverside Hotel, Reno, Nev., Feb. 25-26. A symposium on trauma will be presented Thursday morning and panel discussions on intestinal obstruction and the prevention and treatment of postoperative pulmonary complications Thursday afternoon. Thursday, 8:30-10 p. m., there will be a symposium on cancer. A panel discussion on jaundice will be held during luncheon Friday, 12 noon to 1:30 p. m., a symposium on atomic injuries, 2-3:25 p. m., and a panel discussion on complications of peptic ulcer, 3:35-5 p. m.

Sioux Valley Medical Society.—The Sioux Valley Medical Society will hold its annual meeting Feb. 23-25 in Sioux City, Iowa. Tuesday at 8 p. m. Dr. Amos C. Michael, Vermillion, S. D., will discuss "Dehydration, with Emphasis on Possible Complications of Low Salt Diets." The Woodbury County Medical Society will be hosts at the smoker and Dutch lunch that will follow. A sound motion picture, "Oxygen Dosage and Techniques," will open the Wednesday morning meeting, and one on the exfoliative cytological method in the diagnosis of gastric cancer will precede the Thursday morning session. Guest speakers will include:

Egbert H. Fell, Chicago, Cardiac Arrest.

Charles K. Kirby, Philadelphia, Neoplasms of the Lower Esophagus and Stomach.

John P. Wendland, Minneapolis, Diagnostic and Prognostic Significance of Retinal Findings in Hypertension.

Louis A. Brunsting, Rochester, Minn., Systemic Lupus Erythematosus.

Leon S. McGoogan, Omaha, Endometriosis.

The presidential address at the informal banquet Wednesday, 7 p. m., will be followed by "European Travelogue (1953)" by Dr. Omar A. Stauch, Sioux City, Iowa. Ladies are expected.

Fellowship in Honor of Russell Wilder.—The National Vitamin Foundation invites holders of doctorate degrees in medicine or one of the biological sciences, interested in continuing training in the science of nutrition, to become candidates for the fellowship recently established in honor of Russell M. Wilder of the emeritus staff of the Mayo Clinic. The three year fellowship, effective Sept. 1, pays the recipient \$4,500 the first year, \$5,000 the second, and \$5,500 the third year. Application forms, obtainable from the offices of the National Vitamin Foundation at 15 E. 58th St., New York 22, must be returned to the foundation on or before March 15, accompanied by a letter from the executive officer of the institution at which the work is to be done and by a letter from the head of the department under which the candidate is to work, attesting that the candidate will be permitted and encouraged to carry on his work and studies in the institution and department indicated. The candidate must (1) outline a program of investigation that must be approved by his preceptor and (2) give reasonable assurance that he will complete his fellowship and continue to work in the field of nutrition after the period covered by the fellowship. Applicants will be notified of action taken on or before July 1.

Tri-State Meeting.—The 55th annual meeting of the Tri-State Medical Association will be held Feb. 22-23 at the Francis Marion Hotel, Charleston, S. C. At 10 a. m. Dr. J. Jennings Cleckley, Charleston, will serve as moderator for a symposium on neuropsychiatry, which will include "The Treatment of Hypochondriasis," "Sub-Insulin Shock in Mild Nervous Conditions," and "Use of Ancillary Psychiatric Personnel and Community Resources in Treatment." At 11:15 a. m. a panel on trauma will be moderated by Dr. John A. Siegling, Charleston, in which "Injuries to the Cervical Spine" and "Fractures of the Humerus" will be discussed. The morning session will end with a presentation on atomic medicine by Rear Adm. Charles F. Behrens (MC), U.S.N. After luncheon, clinical demonstrations will be presented by the faculty of the Medical College of South Carolina. A social hour will precede the banquet, 8 p. m., at which Dr. G. Grady Dixon, Ayden, N. C., will deliver the presidential address. On Tuesday, 10:30 a. m., a pediatric panel will be presented. At 8 p. m. the association will have a combined meeting with the Charleston County Medical Society in Baruch Auditorium, where Dr. Gordon D. Hoople, medical director, Hearing and Speech Center, Syracuse (N. Y.) University, will discuss "Help for the Hearing Handicapped."

Meeting on Forensic Sciences.—The American Academy of Forensic Sciences will hold its annual meeting at the Drake Hotel, Chicago, Feb. 25-27 under the presidency of Dr. Louis J. Regan, Los Angeles. The first general scientific session, Thursday morning, will include a talk by Col. Calvin H. Goddard (MC), U. S. Army, Washington, D. C., entitled "Police

Science: Europe's Contribution to America"; "Suicide and Insanity—As Seen by the Pathologist" by Dr. Philipp R. Rezek, Miami, Fla.; "Sudden Deaths in Infants" by Dr. George J. Carroll, Suffolk, Va.; "Establishing a Medical Examiner's System in a Small Rural State" by Dr. Joseph W. Spelman, Burlington, Vt.; and a discussion of cardiac lesions in cases of sudden death by Dr. Stanley H. Durlacher and Arthur Fisk, B.S., New Orleans, and Drs. William V. Lovitt Jr. and Russell S. Fisher, Baltimore. The following presentations will be given at the afternoon session:

Observations on Some New Blood Factors, Alexander S. Wiener, Brooklyn.

Inherent Hazards of Blood Transfusion, Lester J. Unger, New York.

Application of Blood Grouping in Disputed Paternity, Sidney B. Schatkin, LL.B., New York.

Application of Blood Grouping in the Examination of Blood Stains—Legal Aspects, Briggs J. White, Ph.D., Washington, D. C.

Heredity of Factors S and Kell, Fred H. Allen, Boston.

The Blood Factor f, Alan R. Jones, Boston.

Hemolytic Transfusion Reactions—Medicolegal Aspects, John Elliott, Ph.D., Miami, Fla.

Blood Grouping in Disputed Paternity, Leon N. Sussman, New York.

Dr. Arnold F. Strauss, Norfolk, Va., will serve as moderator for a medicolegal slide seminar Friday, 9 a. m. A seminar on blood group nomenclature will also be held Friday morning. Participants will include Drs. Lester J. Unger and Leon N. Sussman, New York, and Fred H. Allen and Alan R. Jones, Boston. Friday afternoon Dr. Jacob Werne, Edgewood, Md., and Dr. Irene Garrow, Long Island City, N. Y., will speak on legal pitfalls in the performance of medicolegal autopsies. At the annual banquet Friday, 7 p. m., Stanley N. Barnes, assistant attorney general, Department of Justice, Washington, D. C., will discuss "The Judge Looks at the Forensic Scientist." The final session, Saturday morning, will include the following presentations:

Traumatic Rupture of the Aorta with Dissecting Aneurysm, Frederick P. Bornstein, El Paso, Texas.

Two Unusual Cases of Fatal Poisoning: A. Systemic Fluoride Poisoning Following Skin Burns by Hydrofluoric Acid; B. Acetic Acid Poisoning with Hemoglobinuric Nephrosis, Frederick D. Newbarr, Los Angeles.

Results of a Blood Alcohol Testing Program in a Rural State, Joseph W. Spelman, Burlington, Vt.

Statistical Analysis of Toxicologic Cases, Niels C. Klendshoj, Buffalo.

PHILIPPINE ISLANDS

Commemorative Postage Stamp.—The post office in Manila recently placed on sale a new postage stamp commemorating the 50th anniversary of the founding of the Philippine Medical Association, Sept.



15, 1903. The association, starting with a few members, mostly American physicians, has grown to a total membership of 3,300 practicing physicians. The stamp, as seen in the illustration, has for its motif a boy lying on an examination table in a clinic, a physician at his side. The stamp bears the seal of the Philippine Medical Association and the legend "50th Anniversary 1903-1953."

FOREIGN

Scandinavian Congress on Anesthesiology.—The Scandinavian Society of Anesthesiologists extends a cordial invitation to members of the American Society of Anesthesiologists to attend and participate in the third Congress of the Scandinavian Society of Anesthesiologists in Copenhagen, June 11-12. The theme of the program, artificial respiration, will cover (1) physiology, methods, and apparatus and (2) respiratory treatment in clinical practice. Entry of papers must reach the secretary-general, Dr. Henning Poulsen, The Surgical University Departments, Aarhus, Denmark, not later than March 1,

and entry of participation in the congress is to be sent to the secretary, Dr. Valdemar Foght-Nielsen, Central-Hospital, Slagelse, Denmark, before April 15.

CORRECTIONS

Internship and Residency Number.—The statistics published in the Internship and Residency Number of THE JOURNAL, Sept. 26, 1953, are erroneous in table 8, page 280. Through a mechanical error, in the I. B. M. tabulating procedure 700 additional residency appointments were assigned to Psychiatry. The number of residencies filled Sept. 1, 1952, in this field was 833 rather than 1,533 as listed.

The Federal Income Tax.—In THE JOURNAL, Feb. 6, in the article "The Physician's Federal Income Tax," on page 522, under the heading *Equipment*, the word average should have been "salvage" in the third sentence in the last paragraph.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1954 Annual Meeting, San Francisco, June 21-25.

1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Brown Hotel, Louisville, Ky., Feb. 24-25. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Baker Hotel, Dallas, Texas, Mar. 4-6. Mrs. Arline Hibbard, 535 N. Dearborn St., Chicago 10, Secretary.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Mobile, April 15-17. Dr. Douglas L. Cannon, 537 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, Feb. 25-27. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Hotel Galvez, Galveston, Texas, April 7-9. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, Ambassador Hotel, Atlantic City, N. J., April 11-15. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, Houston, Texas, April 8-10. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 6-8. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Roney Plaza Hotel, Miami Beach, Fla., April 5-10. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., April 13-17. Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Commodore, New York, March 11-13. Dr. Marion F. Langer, Room 210, 303 Lexington Ave., New York 16, Executive Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Ambassador Hotel, Atlantic City, N. J., April 10-16. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, The Homestead, Hot Springs, Va., March 14-16. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, Atlantic City, N. J., April 12-16. Dr. Philip Handler, Duke University, Durham, N. C., Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, Atlantic City, N. J., April 12-16. Dr. Cyrus C. Erickson, 874 Union Ave., Memphis 3, Tenn., Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Atlantic City, N. J., April 12-16. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 2-5. Dr. Maurice M. Hoeltgen, 86 East Randolph St., Chicago, Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 15-18. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN SECTION, AMERICAN CONGRESS OF PHYSICAL MEDICINE, Newark, N. J., April 10. Dr. H. L. Rudolph, 400 North Fifth St., Reading, Pa., Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, Convention Hall, Atlantic City, N. J., April 12-16. Dr. M. O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

ISTHMIAN CANAL ZONE, MEDICAL ASSOCIATION OF THE, El Panama Hotel, Panama City, R. P., March 24-26. Dr. I. Robert Berger, Box "A," Balboa Heights, Canal Zone.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 11-16. Dr. Eugene H. Dibble Jr., John A. Andrew Memorial Hospital, Tuskegee Institute, Ala., Secretary.

MICHIGAN CLINICAL INSTITUTE, Sheraton-Cadillac Hotel, Detroit, March 10-12. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Mich., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, April 4-7. Dr. E. Royce Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CONFERENCE ON CARE OF THE LONG-TERM PATIENT, Edgewater Beach Hotel, Chicago, March 18-20. Dr. Dean W. Roberts, 615 N Wolfe St., Baltimore 5, Director.

NATIONAL CONFERENCE ON TRICHINOSIS, A. M. A. Headquarters, Chicago, March 1. Dr. S. E. Gould, Wayne County General Hospital, Eloise, Mich., Chairman.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, Jefferson Hotel, St. Louis, March 10-12. Dr. F. M. Foote, 1790 Broadway, New York 19, Executive Director.

OHIO STATE MEDICAL ASSOCIATION, Columbus, April 13-15. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

TOPEKA, KANS., March 19. Dr. William C. Menninger, 3617 West 6th Ave., Topeka, Kansas, Governor.

RICHMOND, VA., Feb. 25. Dr. Charles M. Caravati, 807 West Franklin St., Richmond 20, Va., Governor.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

FRENCH LICK SPRINGS, Indiana, French Lick Springs Hotel, March 15-17. Dr. Carl H. McCaskey, 20 N. Meridian St., Indianapolis 4, Chairman.

MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.

OMAHA, NEB., Hotel Fontenelle, March 1-4. Dr. Earl A. Connolly, 107 South 17th St., Omaha, Chairman.

RENO, NEV., Riverside Hotel, Feb. 25-26. Dr. Kenneth F. Maclean, 120 N. Virginia St., Reno, Nev., Chairman.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Tutwiler Hotel, Birmingham, Ala., March 8-11. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta, Ga., Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Del Monte Lodge, Pebble Beach, Calif., March 7-8. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ontario, Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Fisiología, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirmot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitaire d O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6^e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Caccuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentina, April 21-28, 1954. Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 14-18, 1954. For information write: Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de Mexico, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida Cuauhtemoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12^e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geoffroy, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8º andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigaderio Luiz Antonio 651, Sao Paulo, Brazil.

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro, Medico, Caracas, Venezuela, Secretary-General.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY, Mexico, D.F., Mexico, Feb. 28-March 4, 1954. Dr. Maximo Garcia Castañeda, Humboldt 17, Mexico 1, D.F., Mexico, Secretary-General.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lastmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARKANSAS:* *Examination*. Little Rock, June 10-11. Sec., Dr. Joe Verser, Harrisburg, *Eclectic*. Little Rock, June 11-12. Sec., Dr. O. L. Atkinson, 2528 Central Ave., Hot Springs National Park.

CALIFORNIA: *Written*. Los Angeles, March 15-18; San Francisco, June 21-24; San Diego, Aug. 23-26; Sacramento, Oct. 18-21. *Oral*. Los Angeles, March 13; San Francisco, June 19; San Diego, Aug. 21; Los Angeles, Nov. 20. *Oral and Clinical Examination for Foreign Medical School Graduates*. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO:* *Examination*. Denver, June 8-9. Final date for filing applications is May 8. *Reciprocity*. Denver, April 13. Final date for filing applications is March 13. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT:* *Examination*. Hartford, March 9-10. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic*. Derby, March 9-10. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DISTRICT OF COLUMBIA:* *Examination*. Washington, May 10-11. Deputy Director, Mr. Paul Foley, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D. C.

FLORIDA:* *Examination*. Jacksonville, June 27-29. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami.

GEORGIA: *Examination and Reciprocity*. Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agaña.

ILLINOIS: *Examination and Reciprocity*. Chicago, April 6-8; June 22-24, and Oct. 5-7. Supt. of Registration, Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

INDIANA: *Examination*. Indianapolis, June 16-18. Exec. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA:* *Examination*. Iowa City, June 14-16. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: *Examination and Reciprocity*. Kansas City, June 9-10. Sec., Dr. O. W. Davidson, 872 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination*. Louisville, June 7-9. Address Mr. Raymond F. Nixon, Ass.-tant Secretary, 620 S. 3rd St., Louisville 2.

MAINE: *Examination and Reciprocity*. Portland, March 9-10. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination and Reciprocity*. Baltimore, June 15-18. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1.

MICHIGAN:* *Examination*. Detroit and Ann Arbor, June 1954. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

MISSISSIPPI: *Examination and Reciprocity*. Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

MONTANA: *Reciprocity*. Helena, April 5. *Examination*. Helena, April 6-7. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA:* *Examination*. Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: *Examination and Reciprocity*. Concord, March 10. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination*. Trenton, June 15-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO:* *Examination and Reciprocity*. Santa Fe, April 12-13. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

OHIO: *Examination*. Columbus, June 14-16. *Reciprocity*. Columbus, April 13. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA:* *Examination*. Oklahoma City, June 9-10. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

SOUTH DAKOTA:* *Reciprocity* can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TENNESSEE:* *Examination*. Memphis, March 24-25. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: *Examination and Reciprocity*. Fort Worth, June 21-23. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

VIRGINIA: *Examination and Reciprocity*. Richmond, June 16. Address: Virginia Board of Medical Examiners, 631 First St., S.W., Roanoke.

ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

PUERTO RICO: *Examination*. Santurce, March 2-6. Sec., Mr. Joaquin Mercado-Cruz, Box 9156, Santurce.

VIRGIN ISLANDS: *Examination*. St. Thomas, June 9-10. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity*. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination*. Tucson, March 16. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

ARKANSAS: *Examination*. Little Rock, May 3-4. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: *Examination*. Denver, March 3-4. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

FLORIDA: *Examination*. Gainesville, June. Sec., Mr. M. W. Emmel, University of Florida, Box 340, Gainesville.

NEBRASKA: *Examination*. Omaha, May 4-5. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln 9.

OKLAHOMA: *Examination*. Oklahoma City, April 16-17. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination*. Portland, March 6, June 5, Sept. 11 and Dec. 4. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: *Examination*. June 11-12. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: *Examination*. Memphis, March 17-18. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

TEXAS: *Examination*. April 1954. Location determined by number of applicants from different sections of the state. Sec., Brother Raphael Wilson, C.S.C., 407 Perry-Brooke Bldg., Austin.

WISCONSIN: *Examination*. Madison, April 3 and June 5. Final date for filing application is March 26 and May 28. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

*Basic Science Certificate required.

DEATHS

McLester, James Somerville * Birmingham, Ala., 88th President of the American Medical Association and for many years chairman of its Council on Foods and Nutrition, died Feb. 8, aged 77. Dr. McLester was born in Tuscaloosa, Ala., Jan. 25, 1877. He obtained his collegiate education at the University of Alabama, where he received his bachelor of arts degree in 1896. In 1899 he was granted his degree of doctor of medicine at the University of Virginia Department of Medicine in Charlottesville. This was followed by postgraduate studies at the universities of Göttingen and Freiburg in Germany, from which he returned in 1902 to become professor of pathology in the Birmingham Medical College. Within a few years his title was changed to professor of medicine, and he began the practice of internal medicine in Birmingham. In 1907 and 1908 he took further postgraduate work in Berlin and Munich. The Birmingham Medical College was discontinued in 1912, and for a few years Dr. McLester was not actively engaged in teaching. After the establishment of a school of the medical sciences at the University of Alabama, he was appointed professor of medicine in 1919 and remained in that position for many years. Dr. McLester had a prominent part in organizing a four year medical school at the University of Alabama in Birmingham, from which the first class was graduated in 1946. At the time of his death he held the title of professor emeritus of medicine. In World War I was commissioned a major in the medical service, and early in 1918 he was promoted to lieutenant colonel in the American Expeditionary Forces, becoming commanding officer of Evacuation Hospital no. 18. On his return from military service in 1919 he resumed practice in Birmingham and became professor of medicine in the University of Alabama School of Medical Sciences. During World War II he was chairman of the subcommittee on nutrition of the National Research Council, which committee was concerned with the feeding of the armed forces. He was also a member of the Food and Nutrition Board of this council. Dr. McLester was secretary of the Section on Practice of Medicine of the American Medical Association in 1917 and 1918, and chairman of this section at the annual session in 1920. He served as a member of the House of Delegates from the Section on Practice of Medicine in 1921, and again from 1929 to 1933. In 1929 he became a member of the Council on Medical Education and Hospitals, serving until his election as President of the American Medical Association in 1934. Since 1933 he was a member of the Committee on Foods (later the Council on Foods and Nutrition) of the Association (with the exception of the two years of his Presidency) and chairman from 1940 to 1952. The Board of Trustees of the American Medical Association, through its Council on Foods and Nutrition, on Nov. 28, 1953, awarded him the Joseph Goldberger award for outstanding contributions in the field of clinical nutrition. Dr. McLester was thus cited for his outstanding role in translating the results of nutrition research into human values and in the integration of nutrition into the teaching of

all phases of medicine. A specialist certified by the American Board of Internal Medicine, he was associated with many scientific societies, being a fellow and past regent of the American College of Physicians, a member of the Association of American Physicians, the Society of Clinical Investigation, the American Climatological and Clinical Association, and the Southern Medical Association. In 1920 he was president of the Alabama State Medical Association and in 1910 president of the Jefferson County Medical Society. He served as chairman of the health advisory council of the Chamber of Commerce of the United States and as a member of the general advisory committee of the National Foundation for Infantile Paralysis. From 1928 to 1935 he was a member of the State Board of Censors and State Board of Health. Dr. McLester was medical director of the Birmingham public schools and on the staff of the Hillman Hospital for many years. He wrote "Nutrition and Diet in Health and Disease," now in its sixth edition, and "The Diagnosis and Treatment of Disorders of the Metabolism." He also wrote the chapter on diseases of the mediastinum in the Oxford System of Medicine and the chapter on syphilis in Cecil's textbook of medicine.

Guess, Harry Carl * Buffalo; University of Buffalo School of Medicine, 1912; member of the House of Delegates of the American Medical Association, 1941 and 1942; past president of the Medical Society of Erie County; member of the American Proctologic Society; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery and the American Board of Proctology; member of the board of trustees of the Western New York Medical Plan; instructor in proctology at his alma mater; since 1939 physician to the Alcoholic Beverage Control Board; member of the publication committee of the *Erie County Medical Bulletin*; on the staffs of the Sisters of Charity Hospital, E. J. Meyer Memorial Hospital, and Lafayette General Hospital; chairman, department of proctology, Millard Fillmore Hospital, where



JAMES SOMERVILLE MCLESTER, M.D., 1877-1954

he was past president of the staff and where he died Dec. 2, aged 65, of coronary occlusion.

Craster, Charles Vaughan, East Orange, N. J.: born in Middlesbrough, Yorkshire, England, April 15, 1877; L.R.C.P., Edinburgh, Scotland, L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, Scotland, 1902; D.P.H., Cambridge, England, 1906; in 1909 went to New York as research assistant in pathology at Columbia University College of Physicians and Surgeons; later while at Rosebank, Staten Island, served as bacteriologist in the New York State Health Department Quarantine Service; health officer of the city of Newark from 1915 to Aug. 16, 1951, when he retired; organized Essex County Health Officers Association; past president of the New Jersey Health Officers Association, New Jersey Health and Sanitary Association, and the International Medical Health Officers Association; fellow of the American Public Health Association; major, U. S. Medical Officers Reserve Corps; died Dec. 7, aged 76, of carcinoma of the bladder.

* Indicates Member of the American Medical Association.

Barry, Lee Willis ☉ St. Paul; born in Elbridge, Mich., in 1886; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; clinical assistant professor of obstetrics and gynecology at the University of Minnesota Medical School in Minneapolis; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; member of St. Paul Surgical Society, Minnesota Academy of Medicine and St. Paul Clinical Club; served as a contract surgeon in the U. S. Army during World War I; affiliated with the Fairview Hospital in Minneapolis, Ancker, Charles T. Miller, St. Joseph's, and St. Luke's hospitals; received his Ph.D. degree in obstetrics and gynecology in 1919 from the University of Minnesota; died in Fort Lauderdale, Fla., Dec. 3, aged 67, of myocardial infarction.

Judd, Albert Martin, Brightwaters, N. Y.; born in 1870; College of Physicians and Surgeons, medical department of Columbia College, New York, 1893; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; formerly clinical professor of gynecology at the Long Island College Hospital, Brooklyn; consulting obstetrician and gynecologist, Kings County Hospital, Brooklyn, and Rockaway Beach (N. Y.) Hospital; consulting gynecologist, Jewish and Swedish hospitals in Brooklyn; consulting obstetrician, Wyckoff Heights and Coney Island hospitals and Norwegian Lutheran Deaconesses' Home and Hospital in Brooklyn, and Flushing (N. Y.) Hospital and Dispensary; died recently, aged 83, of cerebral vascular hemorrhage.

Werner, August Anthony ☉ St. Louis; born in Newton, Kan., Jan. 30, 1883; St. Louis University School of Medicine, 1911; assistant professor of internal medicine at his alma mater; specialist certified by the American Board of Internal Medicine; member of the Endocrine Society, Society of Experimental Biology and Medicine, Southern Medical Association, and the American Association for the Advancement of Science; fellow of the American College of Physicians; served on the staffs of the State Hospital No. 4 in Farmington, Missouri Baptist Hospital, St. John's Hospital, and St. Mary's Group of Hospitals; author of "Endocrinology: Clinical Application and Treatment"; died Dec. 20, aged 70, of injuries received in an automobile accident.

Gray, Charles Perley ☉ New York City; born Jan. 31, 1875; Harvard Medical School, Boston, 1904; adjunct professor of gynecology and obstetrics at New York Polyclinic Medical School and Hospital; fellow of the American College of Surgeons; served during the Mexican border conflict and World War I; past president of the University Alumni Association of New York and of Harvard Medical Society; member of the Association of Military Surgeons of the United States and the Seventh Regiment Veterans Association; served on the staffs of Midtown and City hospitals, the North East Dispensary and Wickersham Hospital where he died Dec. 8, aged 78, of heart disease.

Felton, Lloyd Derr, medical director, U. S. Public Health Service, retired, Bethesda, Md.; born in Pine Grove Mills, Pa., in 1885; Johns Hopkins University School of Medicine, Baltimore, 1916; member and formerly councilor of the Society of American Bacteriologists; member of the American Public Health Association; before joining the U. S. Public Health Service as senior surgeon, was connected with Johns Hopkins in Baltimore and Harvard in Boston, as well as the Rockefeller Institute for Medical Research; medical director of the National Institutes of Health from 1944 until his retirement in 1949; died Sept. 11, aged 67.

Wynkoop, Edward Judson ☉ Syracuse, N. Y.; born in Syracuse April 24, 1869; Syracuse University College of Medicine, 1892; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; professor emeritus of pediatrics at his alma mater; past president of the Onondaga County Medical Society; served during World War I; supervising physician of the Onondaga County Welfare Department; on the staff of the Hospital of the Good Shepard; consulting pediatrician at University Hospital, and the Free Dispensary; senior pediatrician at Memorial Hospital, where he died Dec. 17, aged 84.

Stratton, Frederick Alexander ☉ Milwaukee; born in 1880; Wisconsin College of Physicians and Surgeons, Milwaukee, 1903; clinical professor emeritus of surgery at the Marquette University School of Medicine; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; past president of the Milwaukee County Medical Society; consulting surgeon, Milwaukee County Hospital in Wauwatosa, and Columbia and Johnston Emergency hospitals; chief surgeon on the staff of St. Joseph's Hospital; died in Shorewood, Wis., Jan. 13, aged 73, of cerebral hemorrhage.

Noll, Joseph Emerson ☉ Port Jervis, N. Y.; born in Port Jervis, May 11, 1893; University and Bellevue Hospital Medical College, New York, 1917; specialist certified by the American Board of Radiology; member of the American College of Radiology; fellow of the American College of Surgeons; past president of the Orange County Medical Society; president of the New York State Association for Crippled Children; director of the Cooperative Loan and Savings Bank; served during World Wars I and II; on the staffs of St. Francis Hospital in Port Jervis and Alexander Linn Hospital in Sussex, N. J.; died Dec. 3, aged 60, of coronary thrombosis.

Arnold, Isaac Albert ☉ Louisville, Ky.; born in 1883; University of Louisville (Ky.) Medical Department, 1907; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; instructor in general surgery at his alma mater from 1919 to 1923, from 1923 to 1927 clinical instructor in surgery, and from 1927 to 1939 associate professor of surgery; served overseas during World War I; consultant at the Norton Memorial Infirmary, where he was president of the staff in 1943 and where he died Dec. 3, aged 70, of myocarditis.

von Zelinski, Walter Franz ☉ Col., U. S. Army, retired, Santa Barbara, Calif.; born July 16, 1882; Bennett Medical College, Chicago, 1908; served during World Wars I and II; entered the regular army as a major Sept. 11, 1920; promoted to colonel June 2, 1943; retired Sept. 30, 1945; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the International College of Surgeons and the American College of Surgeons; affiliated with Santa Barbara Cottage Hospital; died Dec. 26, aged 71, of auricular fibrillation and cardiac hypertrophy.

Hodge, James Vernon ☉ Kingsport, Tenn.; born Oct. 31, 1889; Lincoln Memorial University Medical Department, Knoxville, 1914; specialist certified by the American Board of Otolaryngology; past president of the Sullivan-Johnson Counties Medical Society; member of the American Academy of Ophthalmology and Otolaryngology and the Tennessee Academy of Ophthalmology and Otolaryngology, of which he was vice-president; for many years member of the board of education; affiliated with Holston Valley Community Hospital; died Nov. 30, aged 64, of cancer.

Plaggemeyer, Harry Ward ☉ Detroit; Johns Hopkins University School of Medicine, Baltimore, 1907; associate professor of clinical urology at Wayne University College of Medicine; specialist certified by the American Board of Urology; served during World War I; past president of the Wayne County Medical Society; member of the American Urological Association; fellow of the American College of Surgeons; affiliated with the City of Detroit Receiving Hospital and the Grace Hospital, where he died Dec. 19, aged 72, of dissecting aneurysm with pericardial hemorrhage and hypertension.

Witte, Max Ernest ☉ Independence, Iowa; State University of Iowa College of Medicine, Iowa City, 1920; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association and the New England Society of Psychiatry; in 1912 member of the House of Delegates of the American Medical Association; served overseas during World War II; formerly affiliated with the Bangor (Maine) State Hospital and the Maine General Hospital in Portland; superintendent of the Independence State Hospital; died Nov. 12, aged 58, of a coronary attack.

Elmer, Warren Philo * St. Louis; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; associate professor emeritus of clinical medicine, Washington University School of Medicine; for many years on the faculty of St. Louis University School of Medicine; specialist certified by the American Board of Internal Medicine; consultant to the Missouri Pacific Lines; joint author of "Elmer and Rose Physical Diagnosis"; on the staff of the Barnes Hospital; physician in charge of Missouri Pacific Hospital, where he died Dec. 27, aged 74, of coronary thrombosis.

Bach, Luther * Florence, Ky.; University of Louisville (Ky.) School of Medicine, 1915; fellow of the American College of Physicians; past vice-president of the Kentucky State Medical Association; veteran of World War I; trustee and one of the founders of Magoffin Institute at Mount Valley; member of staff, St. Elizabeth and William Booth Memorial Hospital in Covington; consultant, Speers Memorial Hospital in Dayton; died Nov. 28, aged 62, of arteriosclerotic heart disease.

Baird, Charles Glenn * Palo Alto, Calif.; St. Louis University School of Medicine, 1912; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served during World Wars I and II; affiliated with the Veterans Administration in San Francisco; died in the Veterans Administration Hospital in San Francisco Dec. 3, aged 66, of Hodgkin's disease.

Barber, Oliver Stillman * Creston, Iowa; Kansas City (Mo.) Medical College, 1896; Rush Medical College, Chicago, 1897; died in La Grange, Ill., Nov. 15, aged 78.

Barland, Samuel Shay * Elmhurst, N. Y.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1929; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; affiliated with Queens General Hospital and the Memorial Hospital in Jamaica, Parsons Hospital in Flushing, and the Bethany Deaconess Hospital in Brooklyn; died Nov. 27, aged 48, of acute coronary occlusion.

Belitz, Alfred E., * Pepin, Wis.; College of Physicians and Surgeons of Chicago, 1895; died in Wabasha, Minn., Nov. 9, aged 87, of pulmonary emboli.

Berkowitz, Charles * Chicago; Northwestern University Medical School, Chicago, 1930; assistant professor of medicine at the Chicago Medical School; affiliated with the Winfield (Ill.) Hospital and the Mount Sinai Hospital, where he died Jan. 11, aged 48, of cerebral hemorrhage.

Blankingship, Oliver F. * Gordonsville, Va.; Medical College of Virginia, Richmond, 1891; died Oct. 18, aged 86, of coronary thrombosis.

Blau, Albert * Elmhurst, N. Y.; Medizinische Fakultät der Universität, Vienna, Austria, 1899; died Jan. 4, aged 79, of heart failure.

Booher, Wayne Emerson * Waynesburg, Pa.; Western Reserve University Medical Department, Cleveland, 1912; affiliated with the Greene County Memorial Hospital; for many years on the staff of Western Pennsylvania Hospital in Pittsburgh; died in the Presbyterian Hospital, Pittsburgh, Dec. 14, aged 69, of uremia and carcinoma of the prostate.

Bowman, Charles Leon * Pittsburgh; University of Pittsburgh School of Medicine, 1908; fellow of the American College of Surgeons; practiced in Mount Oliver, where he was president of the board of health, and school physician; on the staff of South Side Hospital; died in St. Joseph's Hospital Dec. 14, aged 72, of cancer of the prostate.

Broadbent, Oliver Pickering * Jacksonville, Fla.; Indiana University School of Medicine, Indianapolis, 1924; member of the American Academy of General Practice; died Nov. 22, aged 59, of acute coronary thrombosis.

Bryan, Guy Sanford, Greenville, Miss.; Memphis (Tenn.) Hospital Medical College, 1909; died in Yazoo City Jan. 1, aged 70.

Buck, Leonard William * San Francisco; University of California Medical School, San Francisco, 1928; specialist certified by the American Board of Pathology; member of the College of American Pathologists; lecturer and curator at his alma mater; died Dec. 23, aged 62.

Burnham, James P., Canton, Miss.; Memphis (Tenn.) Hospital Medical College, 1906; died Dec. 24, aged 81.

Carpenter, Thomas Alan, Chicago; Chicago Medical School, 1928; died in Grant Hospital Jan. 7, aged 66, of arteriosclerotic heart disease.

Clark, Guy W., Bertrand, Neb.; Creighton University School of Medicine, Omaha, 1904; died in the Brewster Hospital in Holdrege Oct. 27, aged 80, of arteriosclerosis and uremia.

Copeland, Joseph Walter, Leland, Miss. (licensed in Mississippi in 1907); killed Jan. 7, aged 82, when the automobile in which he was driving was struck by a train.

Cotter, Lawrence Edward * Red Hook, N. Y.; Fordham University School of Medicine, New York, 1913; Dutchess County medical examiner; on the courtesy staff of Northern Dutchess Health Service Center, in Rhinebeck, and St. Francis and Vassar Brothers hospitals in Poughkeepsie; died Dec. 25, aged 65, of a coronary attack.

Cox, Shelby L., Water Valley, Miss.; Memphis (Tenn.) Hospital Medical College, 1901; died Dec. 26, aged 76.

Craddock, James Edward * Louisville, Ky.; University of Louisville (Ky.) School of Medicine, 1932; served during World War II; affiliated with St. Joseph Infirmary, St. Anthony's Hospital, and Louisville General Hospital, where he died Dec. 11, aged 46, of burns suffered in an explosion during a barbecue in his back yard.

Dormody, Hugh Frederick * Monterey, Calif.; University of California Medical School, San Francisco, 1922; member of the Industrial Medical Association; past president of the Monterey County Medical Association; served as a member of the city council and as mayor; co-founder of the Monterey Hospital; died in the University of California Hospital, San Francisco, Dec. 20, aged 58, of hepatitis and postoperative gastrointestinal hemorrhage.

Douglas, Jean Smith, Wooster, Ohio; University of Pittsburgh School of Medicine, 1911; died in Apple Creek Nov. 9, aged 70.

Elsay, Edward McClintock * Glenwood, Minn.; University of Minnesota Medical School, Minneapolis, 1929; affiliated with Glenwood Community Hospital; killed near Black Duck Nov. 14, aged 50, when he was accidentally shot while deer hunting.

Faus, Ralph Warren * Wellington, Ohio; Cleveland-Pulte Medical College, 1914; died Nov. 9, aged 61, of coronary occlusion.

Flesher, Thomas Harrison * Edmond, Okla.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; city health officer; college physician for Central State College; on the associate staff of Wesley Hospital in Oklahoma City, where he died Dec. 20, aged 77, of acute lymphatic leukemia.

Ford, Clyde Sinclair * Col., U. S. Army, retired, Sarasota, Fla.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; served during the Spanish-American War and World War I; entered the medical corps of the U. S. Army January, 1899; promoted through the various grades to that of lieutenant colonel May 15, 1917; retired Nov. 20, 1920 for disability in line of duty; retired as a colonel June 21, 1930 under the act of June 21, 1930; died Dec. 29, aged 86, of internal hemorrhage.

Gerety, William Francis * Danville, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; on the staff of St. Elizabeth Hospital; died Dec. 28, aged 70, of coronary thrombosis.

Goldey, Jacob * New York City; Bellevue Hospital Medical College, New York, 1895; for many years associated with the city health department; died Dec. 28, aged 82.

Gulde, Andros ⊕ Chelsea, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; for many years director of the Chelsea State Bank; died Dec. 22, aged 79, of a heart attack.

Hardin, Thomas Lee ⊕ St. Charles, Mo.; Barnes Medical College, St. Louis, 1896; an Associate Fellow of the American Medical Association; for many years president of the board of education; affiliated with St. Joseph's Hospital, where he died Dec. 9, aged 80, of fracture of the hip, received in a fall, and renal insufficiency with uremia.

Held, Alvin Theodore ⊕ Decatur, Ill.; Harvard Medical School, Boston, 1944; interned at St. Luke's Hospital in Chicago, where he served a residency; certified by the National Board of Medical Examiners; a flight surgeon during World War II; on the staffs of Decatur and Macon County Hospital and St. Mary's Hospital; died Dec. 8, aged 34.

Hendren, Silas Edwards ⊕ Dayton, Ohio; Ohio Medical University, Columbus, 1900; affiliated with St. Elizabeth Hospital; died Nov. 23, aged 81, of cerebral hemorrhage.

Holm, Hillard Herman ⊕ Glencoe, Minn.; University of Minnesota Medical School, Minneapolis, 1919; fellow of the American College of Surgeons; affiliated with Glencoe Municipal Hospital; died in Minneapolis Nov. 19, aged 60, of gastrointestinal hemorrhage.

Ingleright, Leon R., Niles, Mich. (licensed in Michigan in 1901); died Oct. 27, aged 83, of cerebral vascular accident.

James, Howard Stanley ⊕ Cincinnati; Miami Medical College, Cincinnati, 1907; died in the Christ Hospital Dec. 20, aged 73, of intestinal obstruction, volvulus, and old duodenal ulcer.

Jones, Guy Walter Stanley ⊕ New Bedford, Mass.; Tufts College Medical School, Boston, 1914; affiliated with Acushnet and Union hospitals; died in St. Luke's Hospital Dec. 3, aged 70, of myocardial infarction.

Jones, Samuel Houston Sr., Sunbright, Tenn.; Vanderbilt University School of Medicine, Nashville, 1900; formerly member of the county board of education; burned to death in a fire that destroyed his residence Dec. 14, aged 79.

Kelly, Delbert Cleo, Astoria, Ore.; University of Illinois College of Medicine, Chicago, 1940; served during World War II; formerly county health officer; died in the Veterans Administration Hospital in Portland Dec. 2, aged 42, of cirrhosis of the liver and homologous serum jaundice.

Kickham, Charles Joseph ⊕ Boston; Tufts College Medical School, Boston, 1908; member of the New England Obstetrical and Gynecological Society; fellow of the American College of Surgeons; formerly vice-president of the Massachusetts Medical Society; past president of the Norfolk County Medical Association; served as a member of the House of Delegates of the American Medical Association from 1945 through 1951; for many years affiliated with St. Elizabeth's Hospital; died Jan. 4, aged 68, of coronary thrombosis.

King, William Russell ⊕ Tennille, Ga.; Atlanta College of Physicians and Surgeons, 1912; died Dec. 9, aged 64.

Marr, James Jr., ⊕ Grafton, N. D.; St. Louis University School of Medicine, 1927; member of the Iowa State Medical Society; formerly member of the staff of the Glenwood (Iowa) State School; superintendent of the Grafton State School; died Dec. 2, aged 52, of coronary occlusion.

Moffett, James E., Silsbee, Texas; Memphis (Tenn.) Hospital Medical College, 1908; died Dec. 11, aged 68, of coronary thrombosis.

North, Charles Quay ⊕ Seattle; University of Pennsylvania School of Medicine, Philadelphia, 1916; specialist certified by the American Board of Otolaryngology; served during World Wars I and II; died in Redondo, Wash., Dec. 29, aged 65, of coronary thrombosis.

Outlaw, Frank Calhoun, Woodlawn, Tenn.; Vanderbilt University School of Medicine, Nashville, 1891; died Dec. 23, aged 91.

Patterson, Lawrence Leslie ⊕ Kapaa, Hawaii; Denver and Gross College of Medicine, 1909; served during World War I; formerly member of the legislature; died Dec. 15, aged 68.

Phelan, George Warren, Brooklyn; McGill University Faculty of Medicine, Montreal, Canada, 1913; assistant professor of clinical obstetrics and gynecology at State University of New York College of Medicine at New York City; served during World War I, and received the British Military Cross; on the staffs of the St. John's Episcopal Hospital and the Long Island College Hospital, where he died Dec. 31, aged 65, of coronary thrombosis.

Post, Arthur T., ⊕ Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1907; past president of the Harrison County Medical Society; served on the staffs of the Union Protestant Hospital and St. Mary's Hospital; died Jan. 8, aged 73, of coronary thrombosis.

Rhomberg, Edward Bideaux, Guttenberg, Iowa; Loyola University School of Medicine, Chicago, 1930; served during World War II; affiliated with Xavier Hospital, Finley Hospital, and Mercy Hospital in Dubuque, where he died Dec. 18, aged 50, of coronary thrombosis.

Russell, Edmund David, Milwaukee; State University of Iowa College of Medicine, Iowa City, 1896; died in Milwaukee County Hospital in Wauwatosa, Wis., Dec. 27, aged 93, of bronchopneumonia.

Sawyer, Prince Edwin ⊕ Sioux City, Iowa; State University of Iowa College of Medicine, Iowa City, 1895; fellow of the American College of Surgeons; past president of the Iowa State Medical Society; on the staff of St. Joseph Mercy Hospital; died Jan. 17, aged 79.

Shippen, Lloyd Parker, Washington, D. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1907; died Dec. 29, aged 74.

Stueber, Paul Jacob ⊕ Lima, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Lima Memorial Hospital and St. Rita's Hospital, where he died Dec. 22, aged 67, of hypertensive heart disease.

Sutter, Frances Roush, Shelby, Ohio; Laura Memorial Woman's Medical College, Cincinnati, 1896; died in the Sawyer Sanatorium in Marion Nov. 1, aged 82, of cerebral hemorrhage.

Turner, Charles Sampson ⊕ Cranston, R. I.; Harvard Medical School, Boston, 1906; an Associate Fellow of the American Medical Association; died Nov. 9, aged 75, of pulmonary tuberculosis.

Underhill, Samuel Graham, Santa Barbara, Calif.; Harvard Medical School, Boston, 1901; served during World War I; formerly superintendent of the Lynn (Mass.) Hospital; died Dec. 31, aged 78; of cerebral vascular accident, hypertension, and arteriosclerosis.

Warntz, Ralph Eugene ⊕ Nescopeck, Pa.; Syracuse University College of Medicine, 1907; past president of the Columbia County Medical Society; died in the Berwick (Pa.) Hospital Nov. 13, aged 71, of congestive heart failure and diabetes mellitus.

Wittliff, Jack Stanley, Astoria, Ore.; University of Oregon Medical School, Portland, 1949; interned at Providence Hospital, Portland; served during World War II; later served in Korea, died in Portland Dec. 9, aged 31.

Zerbst, George Henry ⊕ Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1924; served as health officer of the Clarendon-Sumter District Health Department, health officer of Lee and Lexington counties, and as director of the division of industrial health for the state board of health; worked with the Veterans Administration on the Veterans Rating Board; died Nov. 21, aged 61, of acute coronary thrombosis.

GOVERNMENT SERVICES

ARMY

Doctor Draft Registrants May Be Reassigned to Ready Reserve Units.—Major Gen. George E. Armstrong, the Surgeon General, announces that reserve physicians and dentists who are not currently under orders for active military duty may join the Ready Reserve Units of the Army Medical Service. This will be accomplished by permitting the special registrants under the "Doctor-Draft" act and others who are in a U. S. Army Reserve Control Group to be transferred immediately to fill an authorized vacancy in a Ready Reserve Unit. Formerly, such a reassignment was prohibited prior to the completion of a tour of extended active duty. Although transferred, the officer will still be subject to an order to active duty without his consent as a person classified under the doctor draft and will be subject, too, to an order to active duty as a member of the unit. The transfer is entirely voluntary and will be made only if the physician or dentist so desires. An estimate of the possible numbers available for such reassignment totals more than 900 Medical Corps officers and 183 Dental Corps officers.

PUBLIC HEALTH SERVICE

Estimated Death Rate for 1953.—Despite a relatively severe influenza outbreak in January and February, the United States death rate for 1953 remained at the low level of 9.6 per thousand population, according to a preliminary estimate by the Public Health Service. This low rate has been achieved in only two previous years, 1950 and 1952, though the rate has been less than 10 deaths per thousand population since 1948.

Total deaths in the United States in 1953 were estimated at 1,523,000, based on monthly reports to the National Office of Vital Statistics by state registration offices. During the first two months of the year, when influenza was widespread, estimated deaths rose to 10% above 1952 levels for the same months. Increased deaths were also associated with the unusual heat waves of June and early September. During the entire summer, June through September, estimated deaths were 4% above the average of the three previous summers.

VETERANS ADMINISTRATION

Rehabilitation of Long-Term Mental Patients.—The Veterans Administration announces that its plan for the final rehabilitation and discharge of long-term mental patients through a program of paid hospital work has been so successful in the pilot study that it is being expanded for general use. The VA said the pilot program not only has resulted in the release of many long-term patients who were thought to have little chance of returning to the outside world but has brought about their discharge after they were equipped and conditioned to compete successfully under normal conditions.

Long-term patients, although medically rehabilitated, are often fearful of leaving the hospital because they have lost job skills and experience during their extended stay in the hospital. In order to bridge the gap, these patients are transferred to member-employee status so they may take necessary, unfilled hospital jobs at set wages and regular hours while they continue to live in the controlled environment of the hospital, with medical care, board, room, and recreation.

With the success of the pilot program already established, the VA has notified its 38 neuropsychiatric hospitals all over the nation that they now may institute the new rehabilitation program if they have the facilities to quarter patients as member-employees. The pilot program at the VA hospital in Perry Point, Md., is still under way. It was instituted by Dr. Peter A. Pfeffer who was manager of the hospital. He now is manager of the new neuropsychiatric hospital in Brockton, Mass., where he will expand the new rehabilitation technique.

At Perry Point, approximately 70 men, who had been hospitalized for an average of 10 years each, were given the opportunity to become member-employees. Some who previously were considered as having little chance of returning to the outside world now have regular jobs away from the hospital and are making a good adjustment as self-supporting citizens. In placing these men in jobs outside the hospital, Perry Point found it was not difficult to convince employers that the men were capable of sustained work. The careful work records maintained by the hospital, based on a regular eight-hour, five-day-week performance, were sufficient proof that the men were ready for outside employment.

Since member-employees are placed in unfilled, but necessary, hospital jobs, no increase in the personnel ceilings of the participating hospitals is needed, the VA said. That means the program may be conducted at no additional cost to the government, but with the potential saving that results from the more speedy return of mental patients to the outside world.

The VA said it considers the new rehabilitation plan as an invaluable addition to its program for hastening the recovery and ultimate economic adjustment of its mental patients, especially since this category of patients represents approximately one-half of the VA's total daily patient load.

Tuberculosis Survey of Veterans and Employees.—For the past four years, the Veterans Administration has conducted an extensive tuberculosis program among veterans. In the four year period the VA has screened 3,217,000 persons for tuberculosis. These include 2,513,000 patients and 704,000 employees, among whom 12,740 cases of active pulmonary tuberculosis and 34,470 cases of inactive pulmonary tuberculosis were discovered. The VA considers the number of new cases found and treated each month as an achievement in the nationwide campaign to bring tuberculosis under further control. In fact, the VA added, the survey has made it possible, for the first time, to keep VA installations virtually "clean" from tuberculosis infection of others. Another benefit cited as of incalculable value to the nation is that the search is turning up many cases in the early stages of tuberculosis when proper treatment has a greater chance of effecting a speedy and lasting cure.

Among the 704,000 VA employees screened, about 85% of the active tuberculosis cases discovered were in the early stages. An important by-product of the program, the VA said, is the large number of other chest diseases discovered during the survey. Nearly 91,000 other chest conditions were discovered during the last year of the survey. A minority of these cases required immediate care.

The VA said the figures also are particularly helpful in planning the most economical use of facilities for hospital treatment, outpatient care, and rehabilitation. The program is conducted in all of its hospitals, all outpatient clinics in regional offices, and among all employees.

In hospitals, a chest film is taken of each veteran on admission. If he remains a long period of time, roentgenograms are made every 12 months, or more frequently if indicated. In the outpatient clinics at regional offices, each outpatient veteran is checked roentgenographically at the time he is examined unless he has had such an examination within the previous six months.

Among employees, a chest roentgenogram is made of every person at the time of employment or when he is separated or transferred. Every employee is checked roentgenographically again at 6 to 12 month intervals, or more often if necessary. A tuberculin test (Mantoux) also is given to medical personnel at the time of employment, with a follow-up in indicated cases, including chest roentgenograms at more frequent intervals. This mass type of survey, the VA said, has proved its worth many times over and will continue to be more valuable as time goes on and new sources of infection are discovered and eliminated.

FOREIGN LETTERS

AUSTRIA

Meeting of Austrian Section of International College of Surgeons.—The Austrian section of the International College of Surgeons met in Vienna, Austria, in June, 1953. Prof. L. Schönbauer, president of the section, and Professor Finsterer, president of the International College of Surgeons, addressed the congress. Professor Schönbauer, speaking on cholecystopathy, discussed the various means of precise diagnosis and the poor results that may follow cholecystectomy. He emphasized dysfunction of the vegetative nervous system and the connections between sympathetic and parasympathetic nerve fibers. His investigations were directed toward determining whether conservative treatment of surgical intervention is best adapted to the treatment of cholecystic disease. Prof. W. Köhlmeier of Vienna spoke on important anatomic variations of the biliary passages and exhibited aberrant biliary ducts, which connected with the right hepatic duct in 55% of his autopsies, with direct communications between the gallbladder and the liver in 14%. Dr. G. Baccaglini of Verona showed a motion picture demonstrating a method and apparatus that permits visualization of the biliary passages during operation. Stones, carcinoma, or other pathological changes can be detected by this method, through techniques developed by Mallet-Guy and Mirizzi. Retrograde cholangiograms taken after choledochoduodenostomy were exhibited by Dr. R. Göttlob of Vienna. He obtained these pictures with neostigmine (Prostigmin) premedication, which constricts the bowel. Prof. F. Mandl of Vienna described his own method for preoperative visualization of the biliary passages, in which he injects a contrast medium through the skin and the liver. This facilitates differentiation of pathological conditions associated with carcinoma, cholelithiasis, and tissue damage.

Modern choice of anesthesia for the patient with a severely damaged liver was discussed by Dr. H. Bergmann of Linz, who prefers continuous high spinal anesthesia after premedication with diphenylhydantoin (Dilantin) and Phenergan (10-[2-dimethylamino-1-propyl] phenothiazine). Dr. Max Thorek of Chicago discussed his method of electrosurgical obliteration of the gallbladder. This procedure has lowered his mortality rate from 9.8 to 0.3%. The disadvantages of choledochoduodenostomy was the theme of Prof. F. Starlinger of Vienna. According to the literature, the mortality rate of this procedure is about 7%, and in his own 104 cases it was 10%. Prof. H. Kunz of Vienna stressed the value of careful exploration and flushing of the biliary passages to prevent recurrent disease. This author believes that scars, enlargement of lymph nodes, and an increase of fibrous tissue following severe inflammations are causes of secondary obstructions of the biliary passages.

Dr. O. Bsteh of Mistelbach described a case of fatal circulatory collapse, the result of compression of the portal vein, during an attempt to stop a hemorrhage in this region. Animal experiments indicate that it may be possible to delay such collapse if a preliminary bilateral vagotomy has been performed. Dr. R. Rauhs of Vienna spoke on congenital atresia of the biliary passages. He distinguished a proximal and a distal type and stated that only the proximal type is operable. If there is any indication that this condition exists in a newborn child, he advocates exploratory laparotomy. Dr. W. Lutze of Vienna reported 25 cases of rupture of the gallbladder, stating that the incidence of rupture in patients with disease of the gallbladder is 5.7%. The mortality rate is about 60% and depends on the time in which surgical intervention is carried out.

Dr. C. P. Bailey of Philadelphia presented his new operative technique, atriopexy, for closure of congenital interatrial and interatrial septal defects. He presented the pa-

tients' histories and described successful operations in 29 cases. Dr. A. N. Gorelik of New York described a procedure in which he sutures the pericardium to the heart to provide a better blood supply to the cardiac vessels and the heart itself in patients with rheumatic heart diseases. Prof. Ramirez Duanes of Guayaquil exhibited a film demonstrating radical resection of nearly all the pelvic organs, a procedure introduced by Brunshwig in the United States and employed for patients with advanced carcinoma to prolong survival. Dr. E. F. Bermann of Baltimore described the polyethylene esophagus used to replace an esophagus removed because of carcinoma. The mortality rate accompanying this new technique is about 8%. Professor Mandl and Professor Finsterer of Vienna emphasized the value of exploratory laparotomy in patients with hemorrhage of unknown origin.

CHILE

Pan-American Congress of Surgery.—The Ninth Pan-American Congress of Surgery was held in Santiago in November, under the chairmanship of Dr. Leonidas Aguirre Mac-Kay (Chile). Dr. F. de Amesti and Dr. E. Collao in discussing constrictive pericarditis stated that the disease is most prevalent in adolescents and young adults, though it may be observed in childhood. The most frequent cause is tuberculosis, which was found in about 50% of the cases and suspected in an additional 40%. It was frequently noted that in the course of treatment of tuberculosis with streptomycin Koch's bacillus disappears from the effusions; in a significant percentage of patients the histopathological manifestations of the disease are not discovered in the pericardial tissues. The calcifications observed in these patients, and the manifestations of tuberculosis in other systems, make the tuberculous origin very likely. About 10% of all the cases may be attributed to a pyogenic infection. Rheumatism does not appear to play any part in this disease. It is seen most commonly among the lower social classes. It is hoped that with the use of streptomycin, *p*-aminosalicylic acid, and isoniazid the frequency of constrictive pericarditis will decrease. The authors point out the dangers associated with giving these drugs either directly into the pericardial cavity or parenterally. Streptomycin so accelerates the production of scar tissue as to render subsequent cardiac decortication very difficult. This objection does not apply to isoniazid. It now seems advisable to perform this operation as soon as the exudative process has subsided and the first manifestations of constriction appear. The difficulties in performing the decortication, the operative mortality, and the poor results obtained are attributable to operating too late.

The cardiologist should determine the zone of greatest cardiac compression so that the surgeon may concentrate his efforts in that area; otherwise he must perform the most extensive decortication possible, including both ventricles, the apex of the heart, the auricles, and the vena caval openings. For patients who do not improve after the first operation the authors recommend a second operation about two months later.

Prof. A. Velasco (Chile) in discussing methods of diagnosis and treatment of arterial disorders of the extremities concluded that palpation of the arteries is a simple and effective procedure in spite of the fact that it gives no information about the state of the arteriocalcapillary network. The possibility of anomalies must be kept in mind. Oscillometry is a valuable diagnostic procedure but it also fails to indicate the state of the capillary network. Simple radiography is an aid to early diagnosis of arteriosclerosis in many cases. Arteriography can now be performed with little danger and gives valuable information concerning the localization and extent of the arterial involvement. In the study of vasodilatation it is a serious error

to rely on only one of the functional tests. The author uses them in the following order: basal thermometry, ambient or posterior tibial heat, anesthesia of the ulnar or common peroneal nerve, sympathetic anesthesia, test with tetraethylammonium bromide, spinal anesthesia, and finally general anesthesia. Frequently enough information is obtained from the first four of these tests, in which case the rest are not made.

The author now performs arterial ligatures only in exceptional cases, preferring arteriectomies complemented by operations on the sympathetic nervous system in most cases. At present the indications for vascular sutures may be amplified, and with anticoagulants and better surgical procedures the results are encouraging.

In analyzing the various methods of treating arterial and arteriovenous aneurysms, Velasco stated that the ideal form of therapy is endoaneurysmorrhaphy, and only in patients in whom this form of treatment is impossible does he use other techniques. A complementary regional sympathectomy is of great help. Post-traumatic arteriovenous aneurysms are much easier to treat than congenital aneurysms.

In embolism, the ischemia is the result of a combination of obstruction of the vessel and sympathetic reflex vasoconstriction. Embolism may be confused with acute thrombophlebitis. Massive gangrene of the upper extremities is rare, whereas in the lower extremities it is the rule. Embolectomy must be performed on these patients. The treatment of choice for acute thromboarteritis is early arteriectomy combined with regional sympathectomy.

The author differentiated the rare essential from the commoner symptomatic Raynaud's syndrome and stated that in the essential Raynaud's syndrome there are no organic vascular lesions unless the disease is of long standing. Treatment is successful only if the disease is due to endocrine disorders; otherwise palliative treatment is all that can be offered.

Radiography aids in the early diagnosis of arteriosclerosis, but clinical examination is a sufficient guide to prognosis and treatment. Surgical treatment is recommended for a selected group of patients. Gangrene may be prevented if the diagnosis is made at an early stage of acute thromboarteritis and arteriectomy complemented by sympathetic anesthesia or resection is performed as early as possible. If amputation becomes necessary, it should be performed at the level of the thigh, Callander's method being preferred.

Anticoagulants represent a great advance in the medical management of these patients. No really effective drug has been found to relieve the ischemia. Methanesulfonates of dihydrogenated ergotoxine alkaloids (Hydergine), acetylcholine, kallikrein (Padutin), testosterone, and vitamin E have been used with varying results. Periarterial sympathectomy is being used less and less because it provides insufficient denervation and the results obtained are inferior to those following thoracic or lumbar sympathectomy.

Dr. E. Petermann reported a series of 96 cases of traumatic hemothorax, most of which were due to penetrating injuries caused by steel weapons and a few of which were caused by firearms or closed thoracic trauma. In 29 patients the hemothorax fluid reabsorbed spontaneously. The average stay in the hospital of these 29 patients was 10 days. Thoracocentesis was performed early and as the sole treatment in 31 cases. In those cases in which repeated punctures were performed, the removed liquid did not show new hemorrhages but rather an irritative pleural exudation, and the radiological examinations revealed pleural thickening. At discharge the average decrease in vital capacity was about 18%. The average stay in the hospital of this group was 24 days. In 23 of these patients the fluid was coagulated and little or none of it could be removed by thoracocentesis, necessitating thoracotomy or pulmonary decortication. Ten patients were operated on before the 10th and eight before the 20th hospital day. In 14 the thoracotomy was performed through the intercostal space and in 9 by resection of the 6th rib. In the 10 patients operated on before the 10th day, liquid and coagulated blood and a thin network of fibrin, which was beginning to show organization, was found in the pleural cavity. In the patients operated on later,

an already organized membrane was encountered and all required decortication. In five of the patients operated on early no drain was used. At discharge from the hospital the average decrease in the vital capacity was 30%. The average stay in the hospital for this group was 43 days. Infected hemothoraxes were present in 13 patients, and in them little or no fluid could be removed by thoracocentesis. Most of these patients required pulmonary decortication; three of them had empyema and in four it was necessary to drain basal encysted empyemas secondarily. The average decrease in vital capacity was 34.3%, and the average hospital stay of this group was 60 days.

ITALY

Maternity and Child Welfare.—The second national convention of the physicians of the maternity and child welfare organization was held in Verona in October under the chairmanship of Professor Bentivoglio, University of Padua pediatric clinic. Professor Revoltella from the same university spoke of the decrease in the birth and death rates in Italy. This has led to a marked alteration in the population structure, with the proportion of older persons constantly increasing. These facts should lead to a serious investigation of the medical and social measures aimed at preventing a decrease in the birth rate and on the other hand of assuring the highest probability of survival for healthy newborn infants. Better assistance should be given to the pregnant woman and the newborn baby through well-organized medical and hospital services. Professor Revoltella also spoke of the great difference that exists today between the possibilities for obstetric assistance in northern and southern Italy. Somogy's studies indicated that the maternal mortality is less where obstetric care is possible during the delivery. In 1935 in 1 million births 116 women died from puerperal infections and 171 from other diseases of pregnancy (extrauterine pregnancy, uterine hemorrhage in pregnancy, toxemias of pregnancy, and accidents during delivery). By 1948 the mortality had decreased to 35 and 115 respectively. It is noteworthy that the prognosis for the other diseases of pregnancy has not become so favorable as that for puerperal infections, especially in rural areas.

The rate of stillbirths has increased slightly despite the work of the maternity and child welfare organization and legislation concerning maternity. Deaths occurring during the neonatal period have decreased. The causes of the stillbirths are not evident, but of greater interest to the obstetrician is the number of deaths occurring in the neonatal period because in most cases death is caused by a condition that was present before, or became present during, the delivery.

Professor Revoltella emphasized the part played by congenital weakness and prematurity in deaths in the first month of life; many deaths are due to the delivery itself and these could be prevented. A comparative study of these causes in the various regions of Italy indicated that Basilicata, Puglia, and Campania are the regions in which obstetric help is most needed. The neonatal mortality rate is especially high during the first month of life; this phenomenon should be considered with reference to (1) the influence that maternal diseases and diseases of pregnancy exert on the fetus, (2) the course of the delivery, and (3) all the factors that influence the maternal, fetal, and infant mortality. The favorable results that could be attained today have not as yet been realized in this field. Therefore, examinations by the obstetrician and the specialized physician should be encouraged during the pregnancy.

Professor Agosto stated that the infant mortality during the first year of life from 1938 to 1951 had decreased, especially for the last months of the first year of life. Deaths occurring during the first months of life are mainly caused by obstetric rather than pediatric causes. Omitting the former causes, Professor Agosto grouped the causes of death into four classes: (1) acute gastrointestinal diseases, (2) acute respiratory diseases, (3) infectious diseases, and (4) other causes excluding violence. The mortality in the first two groups has decreased markedly, while the decrease is less evident in the

other two groups although there was significant improvement. The mortality for infectious diseases and especially for bacterial diseases has decreased during the last five years. The mortality for tuberculosis has decreased only slightly and that for virus diseases has remained almost stationary. There has been a noticeable decrease in the mortality for syphilis and diseases caused by protozoa; after 1949 there were no deaths due to malaria in children in the first year of life. The mortality for tumors and diseases of the blood and the hemopoietic organs has not changed, but for all other diseases it has decreased.

Reporting on vitamins in the infant's diet, Professor Bolletti of the University of Padua said that vitamin deficiencies during the first two years are common but they are often difficult to diagnose because of the mild and nonspecific signs. The deficiency can be absolute or relative to particular conditions that through a disturbed vitamin metabolism or a greater use of vitamins produce a state in which there is a greater need for vitamins, such as living in a cold and humid climate, various debilitating diseases of long standing, and the prolonged use of some drugs.

Hypervitaminoses, on the other hand, are often not recognized by the practitioner although they are becoming more and more frequent because large doses of single vitamins are being injudiciously administered. The classic picture of hypervitaminosis D was in the past a rare phenomenon and occurred mainly when irradiated ergosterol was used, but it is becoming increasingly common because of the indiscriminate use of large doses of calciferol. This toxicosis is initially characterized by obstinate anorexia, nausea and vomiting, polyuria and polydipsia, and later by nephrotic symptoms with hyperazotemia. It is caused by an increase of the ionized fraction of the serum calcium (as was proved for the first time at the University of Padua pediatric clinic) and by calcium deposits in various organs and various tissues.

Among the various means of treatment, Professor Bolletti stressed the importance of the sodium citrate. He then discussed the two distinct syndromes that are caused by excess doses of vitamin A. One may appear a few hours after the ingestion of a very large single dose (500,000 to 700,000 units for a child) and is characterized by the sudden onset of marked signs of intracranial hypertension. The other is characterized by a slow and gradual onset secondary to prolonged use of vitamin. Its symptoms involve mainly the digestive apparatus, the liver, the skin, and the bones, in which there is a diaphysary cortical hypertrophy. The acute form subsides after administration of the vitamin is stopped. The chronic form, on the other hand, persists for a long time, and the bone manifestations regress only after several months. Among the side-effects caused by excessive doses of the vitamin B complex, Professor Bolletti cited the deaths that have been ascribed to intravenous administration of thiamine (vitamin B₁). Side-effects due to hypervitaminosis PP, C, and K are not easily recognized. He called attention to the antagonisms between lipid-soluble and water-soluble vitamins.

Dr. Panizon, also of the University of Padua, discussed the relationships between vitamins and antibiotics. He spoke of the influence that vitamin K has on the blood coagulation but said that, except for chloramphenicol, which produces a constant fall of the prothrombin time, the antibiotics do not affect clotting. As for the hemorrhage-causing effect attributed to streptomycin and *p*-aminosalicylic acid, it must be remembered that these drugs act in tissue that is already damaged.

Metabolic disorders caused by antibiotics include (1) neuritis, anemia, and glossitis due to the sulfonamides; (2) black and hairy tongue due to penicillin and streptomycin; and (3) stomatitis, gastritis, and enteritis due to chlortetracycline, chloramphenicol, and oxytetracycline. The main objection that can be made to the use of antibiotics is a reduced absorption of vitamins B₆, PP, and B₁₂, and since this secondary effect does not subside spontaneously, vitamins of the B group should be given in average doses during and after the administration of antibiotics. The metabolic advantages that derive from the use of antibiotics derive mainly from a favorable action on growth, but these advantages are mainly seen in zootechnics and experimental physiology.

LONDON

Corticotropin (ACTH) and Cortisone in Hematology.—The second report of the Medical Research Council Panel on the hematological applications of corticotropin (ACTH) and cortisone (*Brit. Med. J.* 2:1400, 1953) is based on an analysis of a further series of 65 patients, of whom 37 received cortisone; 23, corticotropin; and 5, both. The period of treatment ranged from 10 to 40 days. The total dosage ranged from 1 to 3 gm. of corticotropin and 1 to 7 gm. of cortisone, with a maximum daily dosage of 80 to 200 mg. for corticotropin and 100 to 300 mg. for cortisone. There were 10 patients with acquired hemolytic anemia (7 idiopathic and 3 symptomatic), of whom 5 showed a complete response and 3 a partial response. There was no response in one patient with congenital hemolytic anemia or in one with nocturnal hemoglobinuria. The response in 22 patients with purpura was thrombocytopenic in 15; toxic in 1; and nonthrombocytopenic in 6. One of three patients with aplastic anemia and one of two with panhematopenia had a partial response, and there was a complete response in one patient with agranulocytosis. None of the four patients with acute myeloid leukemia showed any response, and of the six with acute lymphatic leukemia one had a complete and one a partial response. There was no response in three patients with unclassified leukemia, and of five with reticulosis two had a partial and one a complete response.

A follow-up of the 88 patients included in the panel's first report (*Brit. Med. J.* 1:1261, 1952) showed that only six "appear to have improved and remained well after a single course of ACTH or cortisone"; i. e., two patients with acquired hemolytic anemia, two with idiopathic thrombocytopenic purpura, and two with toxic purpura.

Corticotropin (ACTH) and Cortisone in Nonrheumatic Conditions.—A report from Leeds (Aber, G. M., and others; *Brit. Med. J.* 1:15, 1954) gives the results obtained from the use of corticotropin (ACTH) and cortisone in nonrheumatic diseases in 43 patients. These included 14 patients with diseases of the blood. There was a favorable response in three children with acute acquired hemolytic anemia and in two patients with thrombocytopenic purpura. Of three patients with agranulocytosis, one had an excellent response, one a temporary response, and one did not respond at all. The response in three patients with myeloid leukemia was discouraging. Of 10 patients with exophthalmic ophthalmoplegia, 6 showed no improvement, 3 responded well, and 1 responded dramatically. In an attempt to explain these discrepancies in results, it was pointed out that the best results were obtained in patients whose exophthalmos was of recent origin or had suddenly and rapidly progressed. On the other hand, no response was obtained in all three patients with exophthalmos unaccompanied by weakness of the ocular muscles. The results in Simmonds' disease are summarized as follows: "The effect of ACTH in severe pituitary insufficiency has been studied in three patients, with a benefit from treatment so remarkable as to leave no room for doubt. In one patient, almost moribund on admission, the effect was lifesaving. They are now restored to useful domestic activity, though the glandular deficiency is such that continued maintenance treatment seems necessary." Two patients with virilism were treated by adrenalectomy and cortisone. In neither did the results obtained justify the risks involved. In two pseudohermaphrodites, 17-ketosteroid excretion was controlled by the use of cortisone. Their experience with two patients suffering from cirrhosis with portal hypertension indicates that "ACTH has no certain place in the present admittedly unsatisfactory attack on the problem of portal hypertension though it may remain a useful therapeutic adjuvant in the treatment of cirrhosis." Diuresis was produced in two patients with nephrosis, and in one the remission has lasted for more than a year. They confirmed the beneficial effects of cortisone and corticotropin in seven of nine patients with severe bronchial asthma: "The intravenous infusion of ACTH in normal saline seems to offer the best prospect of rapid symptomatic relief, and, together with the topical administration of cortisone by inhalation, allows of considerable economy in prescribing. The remissions induced

by these forms of treatment average one to two months, probably differing little from the duration of freedom afforded by the more usual forms of treatment."

Another Penicillin Fatality.—Another death attributed to penicillin was reported by R. C. Bell (*Lancet* 1:13, 1954). The death followed within a few minutes the injection of 300,000 units of procaine penicillin G. Within half a minute after the injection the patient, a man of 47, called out that he felt ill. His face became pale; his eyes were bloodshot; and his arms and legs became deeply cyanotic. Sticky fluid began to exude from his mouth, and well-marked signs of pulmonary edema were audible on auscultation. In spite of the administration of oxygen and nikethamide intravenously, he died in a few minutes. The significant postmortem findings were edema of the lungs, grossly edematous aryepiglottic folds, and a pink trachea. There was no previous history of allergic or hypersensitive phenomena, and the patient had previously had injections of both penicillin and of procaine, but not of procaine penicillin. The recommendation was made that "every care should be taken to avoid accidental intravenous injections of procaine penicillin G, and an antihistamine preparation should be kept at hand when this drug is being injected."

Adolescents in Adult Wards.—An investigation of the extent to which adolescents are cared for in adult wards has been made by A. C. Stuart-Clark (*Lancet* 2:1349, 1953). The inquiry, covering 3,954 beds in 195 general medical and surgical wards, revealed that 360 of the beds (9.08%) were occupied by patients between the ages of 12 and 17 years. A questionnaire was also sent to matrons and ward sisters. Of the 150 replies received, 137 felt that adolescents and adults should be cared for separately; the remainder thought they should be together. All agreed that the adolescent girl ought never to be placed in a gynecologic ward. It was generally believed that the risk of incurring fear and of exposure to unpleasant forms of conversation was greater in women's wards, because women were less careful and considerate of the younger members of the ward than men. Other objections to mixing adults and adolescents were that the latter (particularly in men's ward) tended to become spoiled if they stayed in more than a few days, and, conversely, the noise of convalescent adolescents tended to irritate the older patients. A strong preference was expressed for the provision of an adolescent annex or ward. The conclusion is reached that the replies to this questionnaire "make it clear that the percentage of adolescents in general hospital wards is substantial, and this fact, coupled with the overwhelming weight of opinion in favour of segregation expressed by those most directly connected with the life of the ward, suggests that a problem exists of sufficient size to justify fuller and more detailed consideration than has been given it hitherto."

Welfare of Epileptics and Spastics.—A report on the special welfare needs of epileptics and spastics has just been published by the Ministry of Health. It incorporates the findings and recommendations of two committees which investigated the problems of epileptics and spastics respectively. According to the former, there are at least 100,000 epileptics in England and Wales, of whom 20,000 are children of school age. This gives an incidence of at least 2 per 1,000 of population, compared with an estimated 5 per 1,000 in the United States and in Switzerland. The necessity of convincing the epileptic, his family, and friends that "his seizures do not indicate any mental deficiency; that only in so far as the actual seizures dislocate his life is he different from other people and that, apart from this, he is able to lead a normal life and, if he has reached working age, to hold down any job within his capacity" is emphasized. Recommendations were made for intensifying propaganda aimed at employers and workers to overcome their prejudice against, and superstition regarding, epilepsy. It was also recommended that all epileptic children should be brought to the notice of the school medical officer when they are two years of age. Special hostels should be established for those who are ready to try their ability in employment but who still require some care before entering or reentering the general community.

The incidence of cerebral palsy in England and Wales is estimated at between 1 and 2 per 1,000 of the school population. Of those over 15 years of age, the total is probably around 17,000 who are severely handicapped. Cerebral palsy presents a particularly difficult problem because so often there is a mental as well as a physical handicap. In dealing with psychological tests, it was pointed out that, unless these are done by persons with special experience, there is a danger that the child might be certified as mentally defective when in fact he suffers from cerebral palsy and is unable to hear or to express himself. It was concluded that a substantial number of severely handicapped spastics are written off when they attain an age to leave school and return to their homes where they draw assistance grants and come under special observation again only on the death of the parents or because of some other tragic circumstance. Local authorities are urged to consider the possibility of jointly establishing homes for the more severely handicapped adolescents and adults who are capable of some form of occupation. They are also urged to cooperate with voluntary organizations and associations of parents that have specialized in the care and welfare of spastics.

Medical Defense Union.—Presenting the report at the annual meeting of the Medical Defense Union last month, the president, Dr. S. Cochrane Shanks, commented on the increase in litigation that besets the medical profession. "In the past, a patient might hesitate to sue a voluntary hospital or a doctor who gave his services free." It is not the case now, he said. The three defense unions are at present negotiating with the Ministry on the subject, with the object of defending unwarranted actions together and of settling just claims in amicable agreement. Two committees had been set up by the council of the union during the last year—one to report on injection routine in operating theaters and the other, in conjunction with the Association of Anaesthetists, on anesthetic explosions. The first has already completed its work.

Meat Quota.—Each person in the United Kingdom is estimated to have eaten 84 lb. (38.1 kg.) of meat last year. This was 11 lb. (5 kg.) more than in 1951 but 35 lb. (15.9 kg.) below the average of 119 lb. (54 kg.) in 1938. These figures are given in a report published by the Commonwealth Economic Committee. New Zealanders, on the other hand, ate 220 lb. (99.8 kg.) per capita in 1952, or more than persons in any other major meat-producing country. This, however, was still 6 lb. (2.7 kg.) below the 1938 average for New Zealand.

PARIS

Medical Electroroentgenology.—The French Society of Medical Electroroentgenology met on June 13, 1953, to consider malignant granuloma. G. Gibert reported a series of 155 cases. He stated that the diagnosis is often made too late because of an absence of diagnostic signs early in the course of the disease. Skeletal lesions are seen in 10% of the patients. Patients with the chronic form may live for 30 years. Prolonged irradiation may produce cutaneous and visceral lesions. Fauret and Pierard, discussing acute forms and acute attacks of Hodgkin's disease, emphasized the inefficiency of the classic treatment that may even be harmful. Cortisone is only temporarily palliative. Of 246 cases treated, Lamarque, Betoulières, Pelissier, and Bertrand have observed 27 patients with pulmonary parenchymatous localization. The diagnosis is difficult in patients with early parenchymatous lesions or when the disease is associated with the adenopathy of Hodgkin's disease. Large doses of x-rays can slow the course of the disease but the eventual prognosis is poor. The same authors reported on 17 patients with bone lesions in a series of 165 patients with Hodgkin's disease. They confirm the fact that these lesions occur chiefly in the spongy portions, particularly in the spine. Massive doses of x-rays can stop the evolution of the disease. The authors have never observed early skeletal lesions. P. Lehman discussed the future of patients given doses of 3,000 to 3,500 r in 20 to 25 days. Pulmonary lesions are often seen in subjects hypersensitive to x-rays, and it is important to recognize them.

CORRESPONDENCE

PERIODIC HEALTH EXAMINATIONS

To the Editor:—The editorial in the Dec. 19, 1953, issue of *THE JOURNAL* brings into focus vital aspects of the question of periodic health examinations, their validity, and the resistances to their more general application. Several questions are prompted by the discussion in paragraph four of the editorial relating to emphasis on disease rather than on health in educating the public. The interest of the general public on matters of health, bodily function, and good hygiene is illustrated by the success of health museums, exhibits, and lectures. However, these mediums of mass communication have much different implications to the recipients than do close individual attention to and examination of the same public by physicians. The observation of emotional problems in medical patients has convinced me that education in health matters will be successful only as long as the recipient of that information does not feel that he might become the object of an overprotective anxiety on the part of the physician. When a person feels that he is, or may be becoming, the object of the physician's intense concern or overt anxiety, cooperation of that person in health matters drops off sharply. This is true even when the person himself initiates the contact with the physician. The patient fears that the hidden illness that may be found in a periodic health examination may not be subject to definitive therapy. More important, however, he seems acutely aware that his capacity to fulfill obligations (business, financial, and emotional) is being threatened with some degree of curtailment. To avoid this anxiety-provoking possibility for himself, he prefers to avoid medical investigation of hidden asymptomatic illness. The attitude of physicians about their own personal health matters illustrates this point quite well. Certainly a physician is as prone to ignore his physical state as the average lay person and does not submit to annual examinations as commonly as other groups.

In discussing the matter of periodic health examinations of patients with various physicians who have incorporated this into their regular practice, I am left with the impression that rarely does the patient return for these examinations of his own accord. Rather he returns under pressure from his immediate close relatives, from the business firm employing him, or for the reason that he is anxious to fulfill obligations of various kinds to those closest to him. Only a small minority return because of primary anxiety about their own well-being. The success of the Well Baby Clinic is determined by the anxious mother rather than by the free choice of the person under examination. The free choice of an adult about periodic health examinations constitutes a major obstacle to the widespread popular acceptance of it among patients. Understandably, the patient does not wish to enter into an anxiety-provoking situation with the many threats that the discovery of hidden illness implies. As indicated in the editorial, the small minority who constantly seek medical attention because of their own anxiety very frequently resist the ordinary reassurances of the physician. This attitude constitutes an illness in itself. In brief, the patient's anxiety about his obligations and relationships to others mounts sharply when it is faced by frustration. Such frustration is threatened by the physician's search for early or hidden illness. Hence the patient avoids the anxious attention of anyone, including the best-intentioned physician.

Anyone seeking to stress the importance of periodic health examinations may well be forced by the above considerations to exert the pressure on the "patient" indirectly through close relatives or business associates. At the present time, I feel it would be a serious mistake to attempt to put the pressure directly on the patient by any technique. Perhaps in the future an altered attitude toward illness may make these considerations invalid.

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HAZARDS OF LIVER EXTRACT AND FOLIC ACID IN LEUKEMIA

To the Editor:—Although our knowledge of the basic factors involved in the leukemic process and the relationship to nucleic acid metabolism is imperfect, there is ample evidence, both experimental and clinical, of the vital role of folic acid and vitamin B₁₂ in normal hematopoiesis. Taking advantage of this fact, of course, has led to the clinical application of antimetabolites and, specifically, folic acid antagonists to therapy of the acute leukemias. Unnatural purines, such as 6-mercapto-purine, are also in use as blocking agents in the chain of nucleic acid synthesis for acute leukemia therapy. It seems irrational, therefore, to administer folic acid or liver to a patient with acute leukemia. The same contraindication to vitamin B₁₂ seems probable, although there is conflicting evidence as to the specific role of this substance in nucleic acid metabolism of the leukocytic series. While this conclusion seems self-evident, there apparently is insufficient appreciation of this fact by the medical profession at large.

I have recently observed instances of rapid worsening in two cases of acute leukemia in adults and apparent conversion of a chronic myelogenous leukemia into an acute phase immediately after ill-advised administration of liver and vitamin B₁₂ in another patient. In all three cases, these hematopoietic agents were given because of the finding of "anemia!" The diagnosis of leukemia was obvious in all three cases by simple observation of a routine peripheral blood smear.

"Shot-gun therapy" is always to be deplored. Usually in "anemias" such empirical administration of drugs is harmless except to the patient's pocketbook, although confusion and obscurity of a specific etiological diagnosis may be produced thereby. In the case of anemia due to acute leukemia, however, the blind administration of powerful hematopoietic drugs may be actually disastrous. It has long been recognized that irradiation is contraindicated in the acute leukemias, and the same contraindication to folic acid and liver should be recognized. It is true that the course of acute leukemia is very capricious and that dramatic changes in peripheral blood cell counts, cell morphology, and symptomatology occur commonly without any form of treatment. Nevertheless, the courses of these three patients were so similar immediately after the administration of liver extract that a cause and effect relationship seems justified.

Although three cases have no statistical validity and the course of events may have been coincidental, there is no way of knowing how often a similar situation may occur. Particularly with increasing recognition of early phases of leukemia, manifested only by unusual anemias, leukopenias, or thrombocytopenia, it seems timely to express this warning and to solicit the opinions and experiences of other members of the profession.

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COLLECTION OF BLOOD BY RED CROSS

To the Editor:—I would like to correct the statement that appeared on page 14, of the Jan. 9, 1954, issue of *THE JOURNAL* and that gave the blood collection figures of the Red Cross for the fiscal year ending June 30, 1953. The Red Cross procured a total of 4,121,250 pints of blood, of which 1,791,650 pints were distributed to civilian hospitals and 2,329,600 for defense. Of the blood collected for defense purposes, 383,852 pints were collected by the cooperating blood banks and 1,945,748 pints were collected by Red Cross centers.

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Director, Blood Program
The American National Red Cross
Washington 13, D. C.

MEDICAL MOTION PICTURES

NEW FILMS ADDED TO A. M. A. MOTION PICTURE LIBRARY

Artificial Respiration: 16 mm., black and white, sound, showing time 10 minutes. Produced in 1952 by the United States Coast Guard, Public Information Division. Procurable on loan (service charge \$2.00) from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film consists of scenes specially made on the seashore but concludes with a number of shots made in other environments, to show the details of two methods of artificial respiration, namely, the back pressure arm lift and the back pressure hip lift methods. It would have been well to demonstrate the insertion of a nasal catheter since it was shown in place on two different occasions. The advice to use 5% carbon dioxide with 95% oxygen is not in accord with discoveries of the last three or four years; 100% oxygen is now considered best by the majority of physiologists. In spite of these minor comments, it is hard to imagine a type of audience that would not profit from seeing this film. It can be shown to any audience from cub scouts to medical groups that is interested in the subject. The picture is well organized and the photography is excellent.

Congenital Malformations of the Heart: Part III. Cyanotic Heart Disease: 16 mm., color, sound, showing time 28 minutes. Prepared by Robert F. Rushmer, M.D., University of Washington School of Medicine, Seattle. Sponsored by Dr. and Mrs. Maimon Samuels, Seattle. Produced in 1953 by the Department of Medical Illustration, University of Washington. Procurable on loan (service charge \$3.00) from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film deals with the principles involved in altered physiology of the heart in cases of congenital cyanotic heart disease. It is well illustrated with fluoroscopic and x-ray studies of these conditions in a series of children as well as with a number of animated schematic drawings. The etiology of cyanosis is considered, pathological lesions are demonstrated, and differential diagnosis as well as the principles of surgical therapy are illustrated and discussed. There is fine organization of the material presented. Illustrations, animation, and photography are excellent. The sound track is distinct and well prepared and in one section clearly reproduces the characteristic murmurs of some types of congenital cyanotic heart disease. This film is recommended for general practitioners, pediatricians, and medical students.

The Physiology and Conduct of Normal Labor: 16 mm., black and white, silent, showing time 45 minutes. Produced in 1941 by Joseph B. DeLee, M.D. (deceased), Chicago Lying-In Hospital. Procurable on loan (service charge \$4.00) from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

The physiology of the first stage is explained and the dilatation of the cervix is demonstrated by animated drawings. The conduct of the first stage with diagnosis of presentation, position, station, etc., is given. Next the mechanism of the second stage is shown on a model. A natural delivery is demonstrated without interference and the same delivery is repeated in slow motion in order to give the lecturer an opportunity to describe the mechanism of labor. The conduct of the third stage is illustrated with models and animated drawings and the film ends by showing the repair of the perineum and the after-care of the baby. Although this film was produced in 1941, the procedures shown are still fundamentally sound and it presents all the mechanisms it is possible to portray. The animation is good and the photography is excellent. It is recommended for county medical societies, medical students, and nurses.

Some Aspects of Accessible Cancer: Part I. Skin: 16 mm., black and white, sound, showing time 29 minutes. Produced in 1951 by the Realist Film Unit, London. Principal advisors: The Royal Cancer Hospital, Westminster Hospital, Middlesex Hospital, and Mt. Vernon Hospital and Radium Institute, and under the general supervision of Sir Stanford Cade, F.R.C.S., Malcolm Donaldson, F.R.C.S., and Dr. G. F. Stebbing. Procurable on loan (service charge \$3.00) from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film concentrates on rodent ulcer and squamous cell carcinoma though other rarer skin cancers are shown. A series of typical cases is exhibited on the screen, and treatment by radiotherapy and by surgery is illustrated. Cosmetic factors and plastic reconstruction are also explained and demonstrated. The importance of early and efficient treatment of these cases is emphasized, and the tragic effects of neglecting apparently trivial lesions is dramatically shown. Great emphasis is laid on the technique of examination of the patient, on metastases, and on the propriety of the use of radiation therapy or surgery or a combination of both. The demonstration of cases before and after treatment is impressive and educational. The film stresses the necessity of early diagnosis. This film is recommended for the general practitioner and also for dermatologists. It is well organized and, although it is not in color, the lesions are very well illustrated.

Some Aspects of Accessible Cancer: Part VI. Rectum: 16 mm., black and white, sound, showing time 24 minutes. Produced in 1951 by the Realist Film Unit, London. Principal advisors: The Royal Cancer Hospital, Westminster Hospital, and St. Marks Hospital, under the general supervision of Sir Stanford Cade, F.R.C.S., Malcolm Donaldson, F.R.C.S., and Dr. G. F. Stebbing. Procurable on loan (service charge \$3.00) from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film points out the importance of rectal examination in all suspicious cases of bleeding from the rectum, followed if necessary by sigmoidoscopy. Surgery is the treatment of choice in most cases, and the British method of performing an abdominoperineal resection is shown, followed by a demonstration of the synchronous combined procedure. The low mortality and good results of early surgery are emphasized, and the successful management of colostomies is illustrated. The film consists of a very clear and concise presentation of the problem of rectal cancer and it is excellent from a teaching standpoint. It is recommended for general practitioners and medical students. This picture is well organized and, although it is not in color, the lesions are very well illustrated.

MOTION PICTURE REVIEW

The Compound Microscope: 16 mm., color, sound, showing time 22 minutes. Produced in 1953 by Sturgis Grant Productions, New York, for and procurable on loan from Film Distribution Service, Bausch & Lomb Optical Co., Rochester 2, N. Y.

The film opens with a review of the types of microscopes in general use today, then demonstrates the construction, basic principles, correct operation, and care of a modern laboratory microscope. The microscope is assembled, unit by unit, with a commentary on the function of each part. Basic optical principles are clearly shown with animated color drawings. To give a clear demonstration of illumination control and focusing, a split frame is used in portions of the film, giving students a view of both the external operation and the microscope field simultaneously. An illustrated 48 page student manual is designed to supplement information contained in the film and aid the student in understanding and using a microscope. Every person who uses a microscope, unless he is already familiar with details, will profit from this picture. There are a great many persons who have been using the microscope every day for years and who are not familiar with the principles of its use; as a result they do not make full use of this complex piece of equipment. The film can be recommended to medical students, students of medical technology, and science students in general. Even experienced pathologists will find a few valuable pointers. The photography and narration are excellent.

BUSINESS PRACTICE

This is the first of a series of articles by these authors on various phases of business practice. According to the authors there are several kinds of accounts, but none represent money in the bank if they only represent figures in books.—ED.

WHAT ARE YOUR ACCOUNTS WORTH?

Chester Porterfield
and

Geoffrey Marks, Seattle

"I made \$60,000 my first two years of practice, but then I went broke!" was the lament of a physician recently seeking management counsel. He had indeed recorded that total of charges, and, in the sense that he had actually done the work they represented, he had earned the money, but, since he did not collect more than a small percentage of it, it did not take long for his capital to evaporate and his creditors to force him into bankruptcy. This may be an extreme example, perhaps, but it is a true one. The obvious lesson, that money on the books does not equal money in the bank, was further demonstrated to this hapless doctor when he attempted to borrow money on his accounts and, at the same time, to contact patients in person about their long overdue bills. Of course his accounts were rejected as collateral, and their lack of value was confirmed by his lack of success at bringing in more than a few token payments and feeble promises. Significantly, the very patients for whom he had done the most and who consequently owed him the most were the least responsive. Not only had their initial appreciation and gratitude evaporated; they were now replaced by resentment and even open antagonism. He gave up the struggle, closed his office, and moved to try his luck elsewhere.

Few solo practitioners are faced so bluntly with our leading question, since most have had to make some acquaintance with the economic facts of life as they began to establish their practices. This may be unfortunate, since moderately good collections and a satisfactory income usually lead them to ignore the fact that their accounts receivable are building up excessively to the detriment of their future success and good relations with their patients. Rather than recognize that the unpaid bill usually results from their own initial mishandling of the patient in one respect or another, most of them will rationalize either that the patient is a charity case or a "dead-beat" or that their secretaries have been negligent. Actually, inept administrative and collection procedures merely compound the doctor's original error. Therefore he overlooks the chance that the patient's eventual resentment and refusal to pay may turn into an attack on his medical proficiency and integrity. The basic collection problem is thus one of public relations rather than one of finances or office management, but that whole question is better deferred for more intensive development in a future article.

ARE ACCOUNTS RECEIVABLE ASSETS?

Usually the first time the man in solo practice has to face an evaluation of his accounts is when he seeks to float a major loan or when he plans to take in a partner and the accounts

are included among the assets to be purchased. The evaluation for bank-loan purposes has a purely memorandum value and must be more properly considered as in the nature of a character reference asset, but, when the purpose is that of establishing purchase value for a new partner, the question can and often does lead to serious rifts and disagreements among the partners. These basically result from the false analogy that accounts receivable are assets and can be assigned a "book value" in the same sense that partly depreciated furniture can be. When considered for purchase evaluation, they represent only potential future income and have no true value until received as such. The degree to which they will be collected will depend largely but not only on the active continuing efforts put out to insure collection, which will be closely related to the continuing level of service and its acceptance by patients, but also on the effectiveness of the pre-existing collection program. Frequently the evaluation is arrived at by a process known as "aging" the accounts. This involves segregating them as to date of the most recent payment or treatment with more or less arbitrary declining percentages of collectability assigned to those groups of increasing age. The extent and consistency of the previous collection efforts by the office and the policy toward turning accounts over to collection agencies give clues as to what percentages may reasonably be assumed, and the progressive ratio of total receipts to total charges for private patients is another helpful indicator.

COLLECTIONS IN A CLOSED PRACTICE

As an indication of what may actually happen, we will cite figures for a solo practice that was closed because the well-established practitioner was entering military service. A better response would be expected here than where a practice is closed either by the physician's death, extended illness, or removal to another city, when the anticipation of future service and the quality of continuing service are eliminated as factors encouraging payment. The physician in the former instance would be returning to his own practice and patients after a limited absence. Current collections had been running at almost 94% of total charges, but the six months after the close of the practice saw just 37% of the accounts on the books collected. However, this discouraging result, doubly so in view of an intensive collection program beginning with announcement letters to all open accounts followed by monthly letters in place of statements to those not meeting current payments, shows a different picture when broken down by categories. For the purpose of analysis, the accounts were classified as active, last treatment within three months or last payment within two; inactive delinquent, no treatment within three months or payment in last two months; active delinquent, some member of the family constantly under treatment but with little or no effort to reduce large balances owing; and active obstetric. The initial distribution and six-month response were as follows:

(a) *Active*.—39% (representing just less than three months' average charges to private patients) were in this class. In the six-month period, 56% were paid, 10% were sent to a collection agency, and the 34% balance were approaching that stage.

(b) *Inactive Delinquent*.—At closing 16.7% of the accounts were in this class and were already receiving collection letters from the office over the doctor's signature. These letters continued, signed by his secretary, and in six months just 21% of them were collected, 11% went to the collector, with 68%

remaining outstanding. This was just over one-fourth of the collections from inactive delinquent accounts for the previous six-month period in the same office and appears to demonstrate the importance of the doctor's continuing presence even to a group that was no longer in active contact with him.

(c) *Active Delinquent*.—These totalled 36% of the accounts and, for a variety of reasons, had been exempted from any form of collection pressure. Letters could not previously be sent because of frequent treatment, and suggestions for direct contact had brought assurances from the doctor that they were mostly good friends, "slow but sure," etc., and that these accounts were no cause for concern. In six months, 23% were collected, 23% sent to a collector, with 54% still outstanding. In addition to the announcement letter and follow-up reminders, the extremely poor response the first three months, contrary to the doctor's anticipation, necessitated special letters from his attorney and the threat of legal action to over three-fourths of this group. Some 60% of the amount collected resulted from this severe and costly approach.

(d) *Active Obstetric*.—Of the total accounts, 8% were in flat fees for obstetric cases not yet delivered on which partial payments were being made. These were pro-rated with the covering obstetrician; those due to deliver within three months, 42%, completed their payments to the closed office. The balance of the accounts were transferred and the percentage of collections is not known.

When, at the end of six months, it was decided that the downward trend of receipts was rendering the program unremunerative and that all accounts would have to be turned over to an agency, 44% of the original total of accounts remained on the books—30% from the active group, 26% from the inactive delinquents, and 44% from the active delinquents. Almost the only certain conclusion that can be drawn is that accounts are not worth what they seem to be worth when something happens. The case cited was chosen as a relatively clearcut example, although it was not one of "final departure," and it must be assumed that accounts taken over by a partnership will fare better. (Unfortunately, in such circumstances the accounts often lose their identity because of continuing services and it is hard to find material for a comparable study.) Our conclusion remains that accounts more than 90 days old are questionable assets, and the wise physician will at all times attempt, through positive and continuing action, to limit his accounts receivable to two or three months' charges.

ACCOUNT VALUATION IN A PARTNERSHIP

The above instance should at least illustrate that "aging" is likely to prove no more satisfactory a method than any other when a determination of value must be made. A method often employed in forming partnerships, and again largely an arbitrary one, is to place a percentage value (usually between 80 and 90%) on prepartnership accounts. Where an accurate record of charges as well as receipts has been kept, a reasonable "purchase value" can usually be set at the actual average percentage of receipts to charges obtained for the previous six month period. This percentage is the figure we shall be referring to as the collection ratio, and we consider it one of the most significant indicators of the health of a practice. We define it as the ratio of net professional cash receipts (excluding other items of professional income such as salaries or retainer fees) to total charges made (before writing off accounts canceled or assigned for collection). Care should be exercised in comparing these ratios with percentages quoted from other sources, since different bases of determination are often used. In practices where good collection procedures have been an integral part of progressive patient relations, the collection

ratio should be maintained at between 95 and 98%; the new partner entering such a practice will in effect be buying a much better assurance of future income than if the previous collection record was as low as the 60 to 70% we have seen in some poorly managed practices. But problems of evaluation may arise even when collection procedures seem quite effective, especially if a partner's retirement share is based on the total of outstanding accounts. For example, in one medium-sized group practice, the collection ratio had been consistently running above 96%, but, over a period of five or six years, the uncollected accounts had almost all remained on the books with none turned over for collection or formally written off at the completion of the business office's own contact efforts. This is usually an excellent way to convince patients that "You don't have to worry about paying your doctor." As a result, the total of accounts had been permitted to increase until they had reached 4.5 times current average monthly charges, an "overage" that in fact exceeded \$100,000.

The first step taken on correction of the situation was segregation of the longest outstanding accounts, particularly those where all contact had lapsed. Those outlawed by operation of the statute of limitations were immediately written off; the others either received special final letters or were immediately turned over for collection, but with little hope of return since current address information was missing in most cases. The second step was to institute a regular program of monthly surveys of all accounts. Letters over the business manager's signature went to the inactive-delinquent group. All active-delinquent accounts were specially signaled for direct contact by whichever doctor next saw a member of that family. As the program continued, additional accounts were recommended for collection assignment or write-off every month. In this way, the accounts total has been brought down to a reasonable level, current income increased to over 100% of current charges, and the doctors are assured that the active accounts on the books represent nearly full value in collectability.

The most significant point demonstrated in our study of this experience was this: In practically all instances where an account had been outstanding for more than a year, letters from the office brought no response whatsoever. When these accounts went to the collection agency, even those who could still be located and contact made ignored all appeals including the final threat of legal action. While no complete correlation of length of time outstanding against response was attempted for accounts under a year old, only 30% of the number between 6 and 12 months acknowledged the letters with payment or commitment; the remaining 70% had to be assigned for collection action and were removed from the active accounts total. The loss of potential income involved is therefore considerable but, even after discounting for the collection fee, will be less than if such final action had not been taken.

COMMENT

In short, the best way to avoid disappointment in evaluating accounts receivable is to keep them current by means of an active collection program in the practice itself. Personal contact and regular reminder letters from the office will take care of the majority of incipient delinquent accounts and will disclose true hardship conditions, which justify writing off the few that legitimately deserve charity. Formal assignment to a collection agency should be reserved for patients who deliberately ignore all reasonable attempts at settlement or who cannot be located by other means. All such accounts should be removed from the active group, at least so far as consideration in the total dollar evaluation is concerned.

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MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Ophthalmology, Chicago

50:545-670 (Nov.) 1953

- Absorbable Sutures in Cataract Surgery. J. H. Dunnington and E. F. Regan.—p. 545.
- Clinical Aqueous Outflow. B. Becker and J. S. Friedenwald.—p. 557.
- Mechanism of Miotic-Resistant Pupil with Increased Intraocular Pressure. G. S. Tyner and H. G. Scheie.—p. 572.
- Aqueous Outflow Measurements by Continuous Tonometry in Some Unusual Forms of Glaucoma. B. J. Mansheim.—p. 580.
- Simplified Ptosis Surgery: Resection of Levator Palpebrae by External Route. B. D. Leahey.—p. 588.
- Experimental Radiation Cataract: III. Further Experimental Studies on X-Ray and Neutron Irradiation of Lens. D. G. Cogan, D. D. Donaldson, J. L. Goff and E. Graves.—p. 597.
- Relation of Ocular Dominance, Handedness, and Controlling Eye in Binocular Vision. G. E. Berner and D. E. Berner.—p. 603.
- Experimental Production of Radiation Cataracts by Fast Neutrons. C. Moses, J. G. Linn Jr. and A. J. Allen.—p. 609.
- Effect of Hyaluronidase on New Vessel Formation in Cornea: An Experimental Study. I. C. Michaelson, N. Herz and G. Rapoport.—p. 613.
- *Radiation Cataract. W. T. Ham Jr.—p. 618.
- Neuro-Ophthalmology. F. Payne.—p. 644.

Radiation Cataract.—Ham says that isolated cases of radiation cataract appeared among the early x-ray technicians and later among patients who had received radiation therapy to the head. He also mentions the formation of cataracts in physicists who had been exposed to radiation from cyclotrons or to accidental nuclear reactions. Furthermore radiation cataracts were observed in some of the survivors of the atomic explosions at Hiroshima and Nagasaki. The main part of this review is concerned with experimental studies on radiation cataract. In the concluding comment the author says that, from a survey of the human cases, it is apparent that 10 to 20 rep of fast neutrons must be regarded tentatively as a sufficient dose to induce lens opacities that may interfere with eyesight. Additional data are needed to determine the cataractogenic x-ray or gamma ray dose in humans; until such data are forthcoming, it seems wise to consider 500 r of x-rays or gamma rays as potentially dangerous to the human lens. Cytological and biochemical researches on the lens suggest strongly that the lens epithelium may be the initial site of biological injury, leading eventually to radiation cataract. One of the major functions of the lens epithelium may be to provide energy for metabolism in the cortex and nucleus. Inactivation of the enzyme systems in the epithelium after irradiation may be a contributing factor in mitotic inhibition. It is likely that the relative effects of neutrons and x-rays on the generative tissue of the lens epithelium are also similar to the effects in other generative tissues but that, because of the unique structure of the lens, the toleration dose of ionizing radiation is smaller than in other tissues. When bone marrow, for example, is injured by radiation, the damaged cells may be sloughed off and, after various metabolic changes, removed or excreted; eventually, the bone marrow recovers its biological function if the dose of radiation is not overwhelming. The lens, on the other hand, appears to have a "memory" for cellular damage, so that cells that are abnormal but still viable remain within the lens for life because of the lens capsule and eventually collect around the equator or posterior pole, where

they attempt unsuccessfully to differentiate into normal lens fibers. This capacity of the lens to store up damaged cells could account for its susceptibility to chronic doses of radiation. In a sense, it becomes a question of how many damaged cells the lens can tolerate before the clinical manifestation known as radiation cataract interferes with vision.

A.M.A. Arch. Surgery, Chicago

67:629-778 (Nov.) 1953

- *Surgical Treatment of Arteriosclerotic Aneurysms of Abdominal Aorta. J. W. Kirklin, J. M. Waugh, J. H. Grindlay and others.—p. 632.
- Malignant Ganglioneuroma of Ganglion Nodosum of Vagus Nerve. G. T. Pack, I. M. Ariel and T. R. Miller.—p. 645.
- Wound Healing Without Dressings: Clinical Study. C. J. Heifetz, F. O. Richards and M. S. Lawrence.—p. 661.
- *Surgical Closure of Atrial Septal Defects. R. E. Gross and E. Watkins Jr.—p. 670.
- Stenosing Tendovaginitis of Foot and Ankle: Studies with Special Reference to Stenosing Tendovaginitis of Peroneal Tendons at Peroneal Tubercle. M. Burman.—p. 686.
- Intussusception Due to Meckel's Diverticulum: Review of Literature from 1933 to 1951 and Report of Nine Cases Seen at St. Louis Children's Hospital. J. Holowach, D. L. Thurston and E. E. McCoy.—p. 699.
- Benign Tumors of Ampulla of Vater: Comparison of Survival Following Local Resection of Benign and Malignant Ampullary Tumors. A. Kirsteins, M. C. Govostis and J. Van Prohaska.—p. 708.
- An Investigation of Elocaine, Long-Acting Local Anesthetic Agent: I. Animal Studies. G. Margolis, H. E. Hall and W. K. Nowill.—p. 715.
- Id.; II. Clinical Studies. W. K. Nowill, H. E. Hall and G. Margolis.—p. 731.
- Neurological Complications Following Use of Elocaine. W. K. Nowill, H. Hall and C. R. Stephen.—p. 738.
- Cerebral Arteriography with Sodium Acetate (Urokon Sodium) 30%. W. B. Seaman and H. G. Schwartz.—p. 741.
- Qualitative Difference Between Levoepinephrine and Levoarterenol: Experimental Demonstration. G. M. Sanderson Jr. and R. S. Hubbard.—p. 746.
- Studies of Combined Vascular and Neurologic Injuries: III. Effect of Arterial Ligation and Sympathetic Denervation Upon Return of Function after Crushing Sciatic Nerve of Cat. H. B. Shumacker Jr., R. Boone and A. Kunkler.—p. 753.
- Management of Airway in Acute Head Injury. A. W. Ulin and H. L. Rosomoff.—p. 756.
- One-Stage Total Colectomy Including Abdominoperineal Resection with Primary Ileostomy: Surgical Treatment of Chronic Ulcerative Colitis and Familial Polyposis. L. T. Palumbo and G. M. Rugtiev.—p. 762.

Arteriosclerotic Aneurysm of Abdominal Aorta.—Of 23 patients with arteriosclerotic aneurysm of the abdominal aorta operated on, 18 had the aneurysm reinforced with nonabsorbable polyvinyl sponges (Ivalon); 4 underwent thromboendarterectomy and fascial wrapping; and resection of the aneurysm of the abdominal aorta and its replacement by grafts of preserved aorta was carried out in 1. Two of the 18 patients died, 1 of renal failure on the 17th postoperative day and the other of massive thrombotic occlusion of the iliac arteries, necessitating a second operation about 10 hours after the first; the patient died 24 hours later. Follow-up studies were done on 15 patients treated by reinforcement of the abdominal aortic aneurysm with polyvinyl sponges for from two and a half months to two years; five patients died as a result of the disease, and a sixth patient, although still alive, suffered from constant, severe, and progressive pain. Thus six patients presented evidence of continuing extension of the aneurysm despite treatment. The remaining nine patients treated by reinforcement are alive and without pain. One of the four patients in whom thromboendarterectomy and wrapping was performed died in the immediate postoperative period. Of the three patients who survived the thromboendarterectomy, two had uncomplicated convalescence. In the third, the first patient in whom thromboendarterectomy was done, arterial insufficiency developed in the left leg in the early postoperative period, necessitating a mid thigh amputation. The patient who was treated by resection of the aneurysm and replacement by an aortic homograft had a satisfactory convalescence. Pulses were normal in both legs at all times. Final evaluation of this procedure will require com-

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Titles marked with an asterisk (*) are abstracted.

parison of results in a larger series of such cases with results in an untreated control series. Since preparation of this paper, resection of aneurysms and replacement by preserved grafts have been done in four additional patients without death.

Surgical Closure of Atrial Septal Defects.—Twelve patients with septal defects between the ages of 5 and 48 years were treated surgically by one of two methods. 1. For treatment of all defects that lie in the central posterior part of the septum, the method consisted of obtaining closure after digital exploration by drawing the septal edge back to the posterior wall of the auricle with mattress sutures. It was possible to perform the necessary steps by passing a finger into an auricle through the appendage, effectively and thoroughly closing the septal orifice, withdrawing the finger, and suturing the auricular appendage, all in less than 10 minutes. The technique is simple and gives little disturbance to the heart. 2. For lesions that may be very high, very low, or very far forward and for all of the openings that are large, a rubber "well" can be attached to the opened auricle, forming a pool of blood through which the fingers can be passed into the auricular chamber and allowing by tactile direction with the fingers repair of the septal opening by direct suture or by the onlay of a polyethylene sheet that is made to cover the opening. Such a sheet was placed in 3 of the 12 patients. It remained for more than a year without any untoward effect. Five of the 12 patients died; two deaths occurred at the termination of operation or later in the same day. They were related to errors in defect closure or to insufficient replacement of blood loss during operation. Two deaths occurred a week after operation when clinical and roentgenologic features indicated that blood was damming up in the left auricle and pulmonary bed. Digitalization, reduction of blood volume, and limitation of salt ingestion might prevent such disasters in the future. The fifth fatality occurred in a 38-year-old man who was known to have a very high vascular resistance and a beginning reversal of flow through the septal opening (arterial oxygen saturation of 88%). The authors now believe that such a situation is a contraindication to surgery. There were seven survivors. In four of these the septum was repaired by direct suture, and in the three others the opening was closed by the onlay of a polyethylene sheet. The postoperative course was most gratifying in these seven patients. The activity and force of the heart beats were unquestionably reduced. Those who before had right-sided heart failure had now lost all evidence of this. The capacity for physical activity was greatly augmented. Physiological studies demonstrated pronounced reduction in the work of the right ventricle. Small interauricular shunts can be tolerated by the human heart through a long life and, hence, do not require any surgical relief; large interauricular shunts in which the pulmonary blood flow is twice or more that of the peripheral flow should be subjected to surgical closure of the septal opening.

American Journal of Medicine, New York

15:591-748 (Nov.) 1953

Ineffectiveness of Aureomycin in Primary Atypical Pneumonia: Controlled Study of 212 Cases. S. H. Walker.—p. 593.

*Treatment of North American Blastomycosis with 2-Hydroxystilbamidine. I. Snapper and L. V. McVay Jr.—p. 603.

Histoplasmosis in Non-Endemic Regions. L. J. Spitz and B. Schwartz.—p. 624.

Erythema Exudativum Multiforme: Its Association with Viral Infections. C. R. Womack and C. C. Randall.—p. 633.

*Determination of C-reactive Protein in Serum as Guide to Treatment and Management of Rheumatic Fever. G. H. Stollerman, S. Glick, D. J. Patel and others.—p. 645.

Locally Administered Hydrocortisone in Rheumatic Diseases: Summary of Its Use in 547 Patients. E. M. Brown Jr., J. B. Frain, L. Udell and J. L. Hollander.—p. 656.

Sprue Syndrome Secondary to Lymphoma of Small Bowel. M. H. Sleisenger, T. P. Almy and D. P. Barr.—p. 666.

Cardiovascular Action of 1,1-Dimethyl-4-Phenylpiperazinium Iodide (DMPP): Ganglion Stimulating Agent Useful in Diagnosis of Pheochromocytoma. I. H. Page and J. W. McCubbin.—p. 675.

Clinical and Hematologic Effects of Triethylene Melamine. A. R. Axelrod, L. Berman and R. V. Murphy.—p. 684.

2-Hydroxystilbamidine in Blastomycosis.—Two Negro men aged 40 and 29 years, respectively, and a 4-year-old Negro girl with proved systemic North American blastomycosis and an 84-year-old white man with the cutaneous type of the disease

were treated with 2-hydroxystilbamidine di-isethionate, containing 54% 2-hydroxystilbamidine. Initially the three adult patients were given 0.11 gm. of the drug intravenously in 20 cc. of 5% dextrose in isotonic sodium chloride solution over a period of 20 minutes. No toxic effects were observed. This dose was repeated every other day and then daily, and in the two Negro patients the daily dose was increased to 0.225 gm. One of the Negro men received three courses of six weeks' to two months' duration, with a total dose of 19.6 gm. of the drug. The other Negro man received a total dose of 8.1 gm. over a period of 52 days. The white man received a total dose of 4.5 gm. in the course of six weeks. The Negro girl had multiple chronic skin lesions with draining sinuses involving the scalp, face, neck, thorax, scapulae, abdomen, hip, and all extremities, associated with pyrexia of five and a half months' duration, and was in a dying state when admitted to the hospital. In view of the promising results of chlortetracycline (Aureomycin) therapy in previous cases of systemic North American blastomycosis administration of this antibiotic was immediately started using 250 mg. every six hours. Forty-eight hours later 2-hydroxystilbamidine di-isethionate therapy was also instituted employing 28 mg. in 10 cc. of 5% dextrose intravenously each day. After four days the dose was increased to 56 mg. every 24 hours, and 11 days later the dose was further increased to 75 mg. daily for eight weeks. Because of pronounced vascular sclerosis, treatment was discontinued for a week and then resumed with 75 mg. of the drug given intramuscularly in 2 cc. of 5% dextrose in isotonic sodium chloride solution containing 20 mg. of procaine hydrochloride. Treatment was given daily for one week. Thereafter 2-hydroxystilbamidine was discontinued as the patient's condition had greatly improved and the supply of the drug was exhausted. Administration of chlortetracycline was continued with an increased dose of 1.2 gm. daily. While the follow-up period in the four patients treated with 2-hydroxystilbamidine was short, objective and subjective improvement in all the patients was most encouraging, at times even dramatic. Prolonged observation will be required for definite evaluation of this method of treatment. Extensive clinical and laboratory studies revealed no definite evidence of toxicity resulting from the prolonged and extensive administration of 2-hydroxystilbamidine. In none of the patients did trigeminal neuropathy develop. In vitro studies established a definite inhibitory effect of 2-hydroxystilbamidine on four strains of *Blastomyces dermatitidis*; 2-hydroxystilbamidine may be slightly more effective than stilbamidine in the mold phase of this organism. In critical cases of systemic North American blastomycosis, chlortetracycline may advantageously be combined with 2-hydroxystilbamidine in treatment.

C-Reactive Protein in Rheumatic Fever.—Serial determinations of C-reactive protein in the serums of 62 patients with rheumatic fever were carried out during various stages of the disease. C-reactive protein was present in moderate to large amounts in the serums of 34 of the 35 patients studied during a period of frank rheumatic activity. Of 11 patients studied during the stage of low-grade rheumatic activity after a frank attack of rheumatic fever, 10 had C-reactive protein in their serums. In another group of 11 patients, there was doubt as to whether the acute rheumatic process had subsided because of persistence of an increased erythrocyte sedimentation rate. C-reactive protein was demonstrated in the serums of 6 of these patients and treatment was instituted. In the remaining five who had negative results from the C-reactive protein precipitin test, the erythrocyte sedimentation rate was restored to normal levels spontaneously. These patients subsequently had an uneventful recovery. Of the 62 patients, 5 had so-called pure chorea unassociated with any other clinical or laboratory finding suggestive of rheumatic activity. All five had negative results from the C-reactive protein precipitin test. These observations confirmed those of Anderson and McCarty, in that the presence of C-reactive protein in the blood of a rheumatic patient is an extremely sensitive and reliable indicator of rheumatic activity if other unrelated pathological

processes can be excluded. Certain isolated rheumatic manifestations, however, may be present without causing the appearance of C-reactive protein in the patient's blood. These include chorea, erythema marginatum, subcutaneous nodules, and Aschoff bodies in the auricular myocardium. The behavior of the C-reactive protein in the blood of 58 of the 62 patients with rheumatic fever also was studied during and after antirheumatic therapy; 23 patients were given cortisone, 4 corticotropin (ACTH), 26 acetylsalicylic acid (aspirin), 3 aminopyrine, and 2 sodium gentisate. The disappearance of C-reactive protein from the blood was a good prognostic sign for the termination of a rheumatic attack but did not preclude the possibility of a future polycyclic recurrence. Persistence of C-reactive protein in the patient's blood during treatment with the antirheumatic agents indicated inadequate suppression of the inflammatory process. Six illustrative cases are reported.

American Journal of Physiology, Washington

175:171-326 (Nov.) 1953. Partial Index

- Limitations of Continuous Infusion Method for Measuring Cardiac Output by Dye Dilution. A. R. Howard, W. F. Hamilton and P. Dow. —p. 173.
- Relation of Left Ventricular Ejection Period to Q-T Interval of Electrocardiogram. J. W. Remington and R. A. Huggins.—p. 185.
- Distribution of Cells and Plasma in Normal and Splenectomized Dog and Its Influence on Blood Volume Estimates with P^{22} and T-1824. E. B. Reeve, M. I. Gregersen, T. H. Allen and H. Sear.—p. 195.
- Comparison of Plasma Volumes Measured by Direct Photometry and by Extraction of T-1824 in Dog and Man. T. H. Allen.—p. 227.
- Simultaneous Measurement of Plasma Volume with Hemoglobin and with T-1824. T. H. Allen, C. Pallavicini and M. I. Gregersen.—p. 236.
- Pathways for Conduction of Tactile Impulses to Paramedian Lobule of Cerebellum of Cat. F. Morin and D. Lindner.—p. 247.
- Brain Potassium Exchange in Normal Adult and Immature Rats. R. Katzman and P. H. Leiderman.—p. 263.
- Purification and Isolation of Certain Intermediates Formed Prior to Activation of Prothrombin. J. E. Flynn and R. W. Coon.—p. 289.
- Effects of Niacin and Niacinamide on Blood Sugar. G. N. Bera.—p. 296.
- Role of Various Organs in Removal of Emulsified Fat from Blood Stream. W. R. Waddell, R. P. Geyer, E. Clarke and F. J. Stare.—p. 299.
- Role of Cholate in Dietary-Induced Hypercholesterolemia of Rats and Rabbits. R. H. Rosenman, S. O. Byers and M. Friedman.—p. 307.
- Effect of Dietary Protein on Fat Content of Feces. D. F. Magee, K. S. Kim and A. C. Ivy.—p. 310.
- Apresoline (1-Hydrazinophthalazine) in Experimental "Eclampsia-Like" Syndrome and Related Aspects of Water Metabolism. A. A. Renzi and R. Gaunt.—p. 313.
- Mann-Williamson Ulcer: Analysis of Digestion and Absorption. H. Singer, J. Sporn and H. Necheles.—p. 322.

American Journal of Public Health, New York

43:1247-1376 (Oct.) 1953. Partial Index

- Opportunities for Application of Epidemiologic Method to Study of Cancer. A. G. Gilliam.—p. 1247.
- Development and Application of High-Free Residual Chlorination in Treatment of Swimming Pool Water. E. W. Mood.—p. 1258.
- *Sanitation of Crushed Ice for Iced Drinks. E. W. Moore, E. W. Brown and E. M. Hall.—p. 1265.
- Procedure for Estimating Tuberculosis Prevalence. J. B. Swayne.—p. 1270.
- Changing Tuberculosis Register. J. H. Korn.—p. 1277.
- Observations on Types and Typing of Salmonella Paratyphi B Cultures in the United States. W. B. Cherry, B. R. Davis and P. R. Edwards.—p. 1280.
- Prescribing, an Index to Quality of Medical Care: Study of Baltimore City Medical Care Program. F. F. Furstenberg, M. Taback, H. Goldberg and J. W. Davis.—p. 1299.
- Study of Food Intake of Group of Children with Cerebral Palsy in Lakeville Sanatorium. C. M. Leamy.—p. 1310.
- Epidemic Hemorrhagic Fever. J. E. Smadel.—p. 1327.

Sanitation of Crushed Ice.—Anyone who has watched the dispensing of crushed ice in chilled drinks knows how frequently fingers touch the ice, whether or not a scoop is used. The usual result is seeding with coliform organisms. Ice to be put in an iced drink or brought in contact with food should conform bacteriologically to the Public Health Service standards for potable water. The authors describe studies on crushed ice dispensed in food serving units at Harvard University. Evidence was obtained that most of the undesirable bacteria were introduced in the dispensing of the crushed ice. A comparatively simple technique was developed for chlorinating the crushed ice previous to dispensing. A stock solution is prepared by adding to a clean gallon (4 liters) jug 25 ml. of 4% hypo-

chlorite solution, or 20 ml. of 5.25% solution. This jug is filled with tap water and kept tightly closed and under refrigeration. This solution will keep about a month. The disinfecting solution is prepared by adding one ounce (30 gm.) of stock solution to each gallon of tap water and mix. This solution is poured into the container of crushed ice until the latter is practically covered. The ice is dispensed directly from the container. Two years' experience with this chlorination procedure in some 15 food serving units has shown that the ice now dispensed meets reasonable sanitary standards and that there is no noticeable impairment of flavor in ice water and iced drinks made with the chlorinated ice.

Am. Practitioner & Digest of Treatment, Philadelphia

4:745-812 (Nov.) 1953

- Essential Hypertension: Management of Sympathectomy Failures. R. J. Gill and G. G. Duncan.—p. 745.
- Rehabilitation of Osteo-Arthritis of Hip. O. F. von Werssowetz.—p. 749.
- Therapeutic Advantages of Addition of Calcium Pantothenate to Salicylates in Oral Treatment of Rheumatoid Arthritis. M. Tufts and C. A. Bunde.—p. 755.
- Uterine Cancer. J. A. Hepp.—p. 757.
- Immediate Management of Convulsive Seizures in Hospital Practice. M. M. Axler.—p. 760.
- Recent Concepts in Migraine and Tension Headache. A. P. Friedman.—p. 762.
- Current Status of Use of Phenylindanedione: Case Report. E. S. McCabe and J. Fittipaldi Jr.—p. 765.
- Chronic Hemolytic Anemia with Paroxysmal Nocturnal Hemoglobinuria: Case Report. R. E. Blount.—p. 768.
- Combat Psychiatry. A. J. Glass.—p. 769.
- Development of Varicella During Aureomycin Therapy: Case Report. A. J. Leeb, M. Asch and G. D. Baldrige.—p. 772.
- Regional Enteritis. P. W. Brown.—p. 774.

American Review of Tuberculosis, New York

68:657-838 (Nov.) 1953

- *Bronchial Disease in Lungs Resected for Pulmonary Tuberculosis. D. E. Olson, F. S. Jones and D. M. Angevine.—p. 657.
- *Tuberculin Sensitivity and Contact with Tuberculosis: Further Evidence of Nonspecific Sensitivity. C. E. Palmer.—p. 678.
- Occurrence of Pulmonary Lesions in BCG-Vaccinated and Unvaccinated Persons. C. Stein and J. D. Aronson.—p. 695.
- Correlation of Tuberculin Reaction with Roentgenologically Demonstrable Pulmonary Lesions in BCG-Vaccinated and Control Persons. J. D. Aronson and C. F. Aronson.—p. 713.
- Cultural Properties of M. Tuberculosis in Resected Pulmonary Lesions of Patients Treated with Streptomycin and Para-Aminosalicylic Acid. G. E. Granville, D. E. Jenkins, D. A. Cooley and others.—p. 727.
- Susceptibility to Isoniazid and Pathogenicity of Tubercle Bacilli. H. Bloch, D. Widelock and L. R. Peizer.—p. 734.
- Observations on Serology of Pulmonary Tuberculosis. A. R. Jones and K. F. W. Hinson.—p. 739.
- Studies of Cellular Lysis in Tuberculin Sensitivity. B. H. Waksman.—p. 746.
- Bronchography with Water-Soluble Contrast Medium (Umbrafil). S. Katz, P. B. Storey, G. F. McCormick and others.—p. 760.

Bronchial Tuberculosis in Resected Lungs.—Six hundred two surgical specimens resected from patients with pulmonary tuberculosis were studied with particular reference to bronchial pathology. In only 10% of the specimens were the bronchi normal. The incidence of different types of bronchial involvement was: chronic bronchitis, 29%; tuberculous bronchitis, 20%; bronchiectasis without endobronchial tuberculosis, 21%; and bronchiectasis with endobronchial tuberculosis, 20%. Some degree of endobronchial tuberculosis was present in 40%, and ectatic bronchi in 42%, of the total specimens. Of those specimens with bronchiectasis, 49% had associated tuberculous endobronchial lesions. Hilal bronchial stenosis was present in 38 specimens. Thirty-three of 302 specimens had microscopic evidence of hilal endobronchial tuberculosis. Tuberculous endobronchial foci were more frequently associated with "cellular" and open cavitary parenchymal foci. They were also commoner in specimens from those patients who had moderate or far advanced disease, who had the disease for less than three years' known duration, who had received no streptomycin and p-aminosalicylic acid or less than four months therapy with it, and who had lobectomies or pneumonectomies. Bronchiectasis was more frequently associated with fibrocaseous parenchymal foci and moderate to marked interstitial pulmonary fibrosis. It was also commoner in specimens from patients who had moderate or far advanced disease, disease of

more than three years' known duration, and lobectomies or pneumonectomies. The duration of streptomycin-*p*-aminosalicylic acid therapy had no influence on the incidence of ectatic bronchi. Noncavitary specimens from patients who never had roentgenographic signs of cavitation and who received nine or more months of therapy with streptomycin and *p*-aminosalicylic acid still had a 27% incidence of endobronchial tuberculosis. Thirty-seven per cent of the specimens from patients who had normal bronchoscopic examinations actually showed endobronchial lesions. This discrepancy is not astonishing as similar findings have been reported by Buckles and associates. The technical difficulties probably responsible for it are discussed; it is probable that careful pathological examination of the lung may uncover lesser degrees of bronchiectasis than are visible on the bronchogram. Emphasis should be placed on the necessity of utilizing both techniques in order to obtain the closest possible correlation.

Nonspecific Tuberculin Sensitivity.—More than 22,000 young women who entered 76 schools of nursing throughout the United States between 1943 and 1949 were tuberculin tested with two doses (0.0001 mg. and 0.005 mg.) of purified protein derivative (tuberculin), or PPD, and answered questionnaires on history of contact with tuberculosis and on all places of residence since birth. Analysis of the material shows that the frequency of those reacting to the first dose increases with increasing degree of contact with tuberculosis: from approximately 10% positive in the group reporting no contact to 20% in those with intermediate and 40% in those reporting close contact. Increased exposure simply affects the frequency, not the intensity, of sensitivity to the first dose. In contrast, the frequency of those reacting to the second dose, expressed as a percentage of those negative to the first dose test, is entirely independent of degree of contact, but closely related to place of residence. Nearly 70% of the permanent residents of the southeastern states were positive to the second dose, compared with less than 30% of those in the rest of the country, regardless of their classification as to contact with the disease. In addition, 40% of those from the southeast had skin reactions exceeding 9 mm. in diameter, compared with 12% from the north and west. The results of this study and of others previously published are consistent with the hypothesis that tuberculin sensitivity in human beings can no longer be regarded as being derived from a single source. Most reactions elicited by a low dose intradermal test (approximately 0.0001 mg. of PPD) undoubtedly indicate specific infection with virulent tubercle bacilli, spread by personal contact. Low degrees of sensitivity brought out only by large doses (1 mg. of old tuberculin or 0.005 mg. of PPD, for example) apparently represent infection by a different organism with a different mode of transmission. The latter (unidentified) organism must be antigenically related to the tubercle bacillus, highly prevalent in certain geographic areas, and apparently nonpathogenic for human beings.

American Surgeon, Atlanta, Ga.

19:1015-1122 (Nov.) 1953

- Studies in Production of Experimental Mitral Stenosis. W. H. Muller Jr., F. C. Spencer, J. W. Cox III and others.—p. 1015.
- Cancer of Thyroid—Review of 47 Cases. B. F. Wooldridge.—p. 1028.
- Carcinoma of Rectum: Factors Responsible for Recurrent or Residual Disease. G. W. Ault.—p. 1035.
- Premalignant Lesions of Gastrointestinal Tract: II. Significance and Management of Polyps of Colon. R. P. Barden and V. W. Ritter.—p. 1045.
- Early and Delayed Operation for Acute Cholecystitis. H. A. Frank and T. G. Orr.—p. 1058.
- Atypical Appendicitis: Its Peculiar Problems and Complications. V. A. Bradford.—p. 1064.
- Chronic Neutropenia: Report of Five Cases Treated by Splenectomy. H. M. Rogers and P. Dann.—p. 1071.
- Late Complications Following Removal of Ruptured Spleen: Report of Two Cases. W. G. Cault.—p. 1083.
- Treatment of Carcinoma of Breast: Super-Radical Operation. O. F. Noel.—p. 1087.
- Effect of Acute Partial and Complete Obstruction of Thoracic Aorta in Dog. R. F. Smith.—p. 1096.
- Open Method of Burn Treatment and Use of Skeletal Traction. J. L. Farringer Jr.—p. 1104.
- Primary Carcinoma of Appendix. D. P. Hall.—p. 1111.

Annals of Internal Medicine, Lancaster, Pa.

39:991-1172 (Nov.) 1953

- *Chronic Sodium Chloride Toxicity: Hypertension, Renal and Vascular Lesions. G. R. Meneely, R. G. Tucker, W. J. Darby and S. H. Auerbach.—p. 991.
- Treatment of Hypertension with Drugs. M. Mendlowitz.—p. 999.
- Mortality Rates in Acute Myocardial Infarction: I. "Normal" Yearly Variation, and Effect of Hospital Admission Policy. S. Schnur.—p. 1014.
- Id.: II. Proposed Method for Measuring Quantitatively Severity of Illness on Admission to Hospitals. S. Schnur.—p. 1018.
- Further Observations on Smoker's Respiratory Syndrome. G. L. Waldbott.—p. 1026.
- Acute Idiopathic Pericarditis. E. M. Goyette.—p. 1032.
- *Review of Current Status of Chemotherapy of Tuberculosis. W. B. Tucker.—p. 1045.
- Primary and Secondary Gout. A. B. Gutman.—p. 1062.
- Hepatomegaly and Diabetes Mellitus. J. I. Goodman.—p. 1077.
- Abnormal Rhythms Associated with Cardiac Surgery and Their Treatment. J. S. Butterworth.—p. 1088.

Chronic Sodium Chloride Toxicity.—The chronic effects of sodium chloride in the diet of mammals were studied in a long-term experiment made on male albino rats. Purified rations, containing from 0.01% to 9.8% of sodium chloride, and water were fed at will from the age of five weeks. Water consumption was related directly to the amount of salt in the diet. A low sodium diet depressed the appetite, but diets high in sodium chloride did not. Edema developed in 18% of the rats placed on the diets that contained from 7 to 9.8% of sodium chloride. Important pathological lesions were observed in the kidneys and to a lesser extent in various other tissues of rats consuming these high levels of sodium chloride. Sustained arterial hypertension was observed in the rats eating high levels of sodium chloride after nine months of the dietary regimen. A linear relationship existed between the sodium chloride concentration in the diet and the systolic blood pressure. The parallel to human hypertension is obvious, but none of the findings in rats can be directly applied to man without extensive further study to evaluate the sensitivity of man to salt.

Current Status of Chemotherapy of Tuberculosis.—From a number of different cooperative studies, carefully conducted with controls assigned by random, it was possible to establish the superiority of certain variables in the chemotherapy of tuberculosis in the last few years. A combination of 1 gm. of streptomycin administered twice a week with 12 gm. daily of *p*-aminosalicylic acid, for periods up to one year resulted in a high degree of therapeutic efficacy and relatively little toxicity and drug resistance. Isoniazid in doses of 300 mg. daily in combination with streptomycin or with *p*-aminosalicylic acid also appears to be effective, although its recent advent has not yet permitted as complete evaluation as with streptomycin and *p*-aminosalicylic acid. Results of chemotherapy in general are less satisfactory when there has been prior chemotherapy than in patients receiving original treatment, and this is in part related to drug resistance. When partial streptomycin resistance has developed as the result of prior streptomycin therapy, some benefit is still to be derived from continued streptomycin therapy, unless that resistance is as high as complete resistance to 100 mcg. per ml. The availability of isoniazid, as a second effective drug, improves the clinical outlook in these patients. When drug resistance to both streptomycin and isoniazid has developed, viomycin in doses of 2 to 3 gm. twice a week was found to be an effective antituberculous agent, though probably of more limited efficacy than streptomycin or isoniazid. It is desirable always to give combined therapy with more than one anti-tuberculosis drug, and *p*-aminosalicylic acid appears to be the preferred drug to be given with either streptomycin or isoniazid. When intolerance to *p*-aminosalicylic acid exists, oxytetracycline (Terramycin) may be employed as substitute. Effective chemotherapy in tuberculosis results in resolution of the reversible components of the disease in a high percentage of cases, leaving residual fibrosis and necrosis. The best clinical management of such residual tuberculous disease, in association with prolonged effective chemotherapy, was not determined with precision.

Annals of Surgery, Philadelphia

138:679-822 (Nov.) 1953. Partial Index

- Peptic Ulcer: Late Follow-Up Results After Partial Gastrectomy: Analysis of Failures.** H. D. Harvey, F. B. St. John and H. Volk.—p. 680.
- ***Perforated Peptic Ulcer: Study of 136 Cases in County Hospital.** E. J. Schmitz, H. N. Harkins, H. H. Olson and others.—p. 689.
- Incidence and Significance of Shock in Head Injury.** E. Campbell and R. D. Whitfield.—p. 698.
- ***Vascular Dynamics in Controlled Hypotension: Study of Cerebral and Renal Hemodynamics and Blood Volume Changes.** G. C. Morris Jr., J. H. Moyer, H. B. Snyder and B. W. Haynes Jr.—p. 706.
- Surgery of Popliteal Artery.** S. F. Seeley, C. W. Hughes and E. J. Jahnke Jr.—p. 712.
- Left Auricular Pressure Measurements in Man.** V. O. Björk, G. Malmström and L. G. Uggla.—p. 718.
- Technic and Interpretation of Lower Limb Phlebography.** A. M. Boyd, B. N. Catchpole, R. P. Jepson and S. S. Rose.—p. 726.
- Liver Function During Intravenous Infusion of Emulsified Fat to Humans.** W. R. Waddell, T. B. Van Itallie, R. P. Geyer and F. J. Stare.—p. 734.
- ***Correlations Between Portal Venous Pressure and Size and Extent of Esophageal Varices in Portal Cirrhosis.** E. D. Palmer.—p. 741.
- Effect of Oral Sulfathiazole on Plasma Prothrombin: Practical and Theoretical Considerations.** P. J. Wessling.—p. 745.
- Strangulation Obstruction—Effect of Pre- and Postoperative Antibacterial Agents.** I. Cohn Jr., A. Gelb and H. R. Hawthorne.—p. 748.
- Lumbar Sympathectomy for Arteriosclerotic Peripheral Vascular Disease.** W. B. Frymark and J. M. Sullivan.—p. 759.
- Urinary Steroids in Adrenocortical Tumor: Excretion of Corticoids and 17-Ketosteroids on Admission, After ACTH, Following Resection, After Withdrawal of ACTH, and upon Recurrence of Masculinizing Carcinoma.** J. D. Hardy.—p. 765.
- Free Grafts to Hand, with Method to Prevent Finger-Web Contracture.** A. H. Bill Jr.—p. 769.
- Complications of Internal Hernial Ring Routinely Left Unclosed in Gastroenterostomy: Report of Two Cases and Method of Prevention.** J. A. Cannon and W. H. Weeks.—p. 772.
- So-Called Retroperitoneal Lipoma.** A. H. Noehren, T. E. Goemmel and S. Tannhauser.—p. 779.
- Growth of Surgical Biology.** F. D. Moore.—p. 807.

Perforated Peptic Ulcer.—During the five year period 1948 to 1952 inclusive, 942 patients were admitted to the King County Hospital in Seattle, Wash., for treatment of peptic ulceration. There were 672 patients with duodenal ulcer, 241 with gastric ulcer, and 29 with marginal ulcer. Perforation had occurred in 136 (13.2%) of the patients with peptic ulceration, and 32 of these patients, or nearly a fourth of those with perforation, died. The patients were observed in a charity hospital. Many were of a relatively advanced age or were derelicts from the skid road. All but 18 of the 136 patients were men. Perforation of a gastric ulcer proved a much more serious condition than that of a duodenal ulcer (mortality in surgical cases 16.6% and 2.7%, respectively). The authors feel that the most important single factor in reducing this high mortality is early institution of therapy. They used operative closure of the perforation, or subtotal gastrectomy in selected patients, as the treatment of choice. Their results in patients treated by a conservative regimen including gastric suction were not good. This may, in large part, be due to the type of patient in whom this form of treatment was employed. The management of the acutely intoxicated chronic alcoholic patient and the chronically malnourished alcoholic patient with gastroduodenal perforation is a trying problem and one that contributes significantly to the high mortality associated with this condition. Four of the six deaths in the surgically treated patients were directly associated with severe alcoholism, and two of them died in delirium tremens. In the patients treated by initial simple closure or by conservative means, recurrence or persistence of ulceration is frequent in the type of patient seen in a charity hospital. The authors feel that elective subtotal gastrectomy within eight weeks after perforation is advisable in selected cases.

Vascular Dynamics in Controlled Hypotension.—The investigation described by Morris and associates is concerned primarily with measurements of cerebral blood flow and cerebral oxygen consumption in surgical patients with marked hypotension induced by hexamethonium. The aim was to determine, if possible, the safe blood pressure ranges that may be employed in surgery under controlled hypotension. Additional studies included differential renal function and blood volume measure-

ments. Cerebral hemodynamic studies were done on five normotensive and three mildly hypertensive surgical patients. Hexamethonium chloride was administered by continuous intravenous infusion (500 mg. of hexamethonium per 1,000 cc. of 5% dextrose in water) to the unanesthetized, horizontally supine patient. Anesthesia was omitted in order that disturbances in cerebral function could be immediately recognized, thus increasing the safety factor in these initial studies. Continuous mean blood pressure recordings were made from a mercury manometer connected to a needle inserted in the femoral artery. A significant decrease in cerebral blood flow followed marked depression in the mean blood pressure in spite of a decrease in cerebral vascular resistance. Cerebral oxygen consumption was only slightly decreased due to a more complete extraction of oxygen from the blood flowing through the brain. Renal function studies were carried out on 12 surgical patients. It was found that, initially, glomerular filtration rate and renal plasma flow were both depressed. However, after two to three hours of maintained hypotension, renal plasma flow returned to control levels whereas glomerular filtration rate remained depressed. Hexamethonium-induced hypotension decreased urine formation. Blood volume estimations were made in 16 surgical patients before induction of hypotension and again after induction. Blood volume was slightly increased because predominately of an increase in plasma volume. There appears to be little danger of cerebral or renal anoxia in the supine patient with a mean blood pressure as low as 55 mm. Hg when employing hexamethonium-induced controlled hypotension.

Esophageal Varices in Portal Cirrhosis.—According to Palmer, it is a common observation that patients with the severest cirrhosis do not necessarily have the largest or most extensive esophageal varices. This raises important clinical questions such as: How valid an estimation of the degree of portal hypertension can be derived from inspection of esophageal varices? Do enlarging varices indicate increasing portal pressure? Studies were made on 25 patients with esophageal varices secondary to portal cirrhosis. These patients were examined serially by esophagoscopy, and measurements were made of varix diameter, extent of esophageal involvement, and portal venous pressure. Two conclusions were reached. 1. There was not close correlation between changes in portal pressure and changes in varix severity among individual patients; however, varices did not become smaller if the pressure increased or larger if the pressure fell. 2. There was no correlation between a certain portal pressure level and the severity of varices among different patients. The author concludes that enlarging varices are not necessarily an indication of rising portal pressure, that the degree of diminution in variceal severity following portal decompression does not necessarily indicate the degree of decompression achieved, and that portal pressure cannot be estimated from varix severity.

Connecticut State Medical Journal, Hartford

17:893-974 (Nov.) 1953

- Surgical Considerations in Treatment of Infection and Gangrene in Diabetic.** S. Silbert.—p. 895.
- Silent Myocardial Infarction.** J. A. Segal.—p. 904.
- Principles and Errors in Proctology.** G. Angelo.—p. 908.
- Clinical Evaluation of Piromen in Dermatology.** H. Sigel.—p. 912.
- Concept of Rehabilitation.** M. E. Switzer.—p. 915.
- Rocky Mountain Spotted Fever in Connecticut: Case Report.** A. A. Tower.—p. 917.

Georgia Medical Association Journal, Atlanta

42:471-512 (Nov.) 1953

- Endometriosis: Problem for Patient and Doctor.** J. H. Ridley.—p. 481.
- Control Study of Combinations of Synthetic and Antibiotic Drugs in Treatment of Pulmonary Tuberculosis.** H. E. Crowe and R. F. Payne.—p. 484.
- Correlation of Radiographic and Surgical Findings in Gallbladder Disease.** J. V. Rogers Jr., J. Bonmati, T. F. Leigh and B. B. Gay Jr.—p. 489.
- Recognition and Treatment of Infectious Mononucleosis.** R. B. Quattlebaum.—p. 494.
- Unusual Manifestations in Myxedema.** S. Brocato and A. J. Leonard.—p. 497.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

8:1-210 (Oct.) 1953

- Gynecologic Problems of Infancy and Childhood. G. C. Schaulfler.—p. 34.
 Problem of Aseptic Meningitis. I. L. Bennett Jr.—p. 45.
 Use of Simplified Formula for Infant Feeding in Small Hospitals. W. E. Henrickson.—p. 51.
 Practical Aspects of Inguinal Hernia. P. Thorek.—p. 57.
 Chronic Occlusive Arterial Disease. J. E. Estes Jr.—p. 63.
 Management of Common Dermatoses. J. L. Callaway.—p. 74.

Illinois Medical Journal, Chicago

104:349-406 (Dec.) 1953

- Social and Economic Impact on Medicine of Control of Infectious Diseases. P. H. Long.—p. 349.
 Dermatologic Emergencies. P. A. O'Leary.—p. 356.
 Physiologic Basis for Choice of Parenteral Fluids in Surgical Patient. E. Marcus.—p. 361.
 Summary of Chemistry and Physio-Pharmacological Action of Adrenal Cortical Steroids. F. Santos and J. T. Branit.—p. 368.
 *Blindness of Premature Infants with Special Reference to Retrolent Fibroplasia. A. C. Krause.—p. 370.
 The New in Dermatology. H. Rattner.—p. 373.
 Splenectomy in Sarcoidosis. M. E. Lichtenstein, L. P. Lundy and S. J. Spinuzza.—p. 378.

Blindness from Retrolent Fibroplasia.—According to Krause blindness in the premature infant has become a major problem during the past 15 years. Retrolent fibroplasia is its most frequent cause. Factors that have been ruled out as playing the etiological role in retrolent fibroplasia are listed, but answers still remain to be supplied as to why this disease was practically unknown before 1937 and why it is more prevalent in certain hospitals. Changes in pediatric management seem to be the most likely explanation. High concentrations and long-continued use of oxygen have been mentioned as a possible cause of retrolent fibroplasia, but many infants with and without added oxygen to their environment have developed retrolent fibroplasia. The common opinion of those who have investigated this factor is that oxygen concentration is not a primary cause but may be indirectly associated with the disease. The fact that in some hospitals premature infants fed only human milk never have retrolent fibroplasia is cited as another significant factor. Believing that the disease may be related to edema and vascular stasis caused by disturbance or poorly controlled water and electrolyte metabolism in the premature infant, salt in the daily food intake was restricted so that it approached the concentration and amount of salt in human milk. Only one infant annually developed retrolent fibroplasia after that. With this clew the investigation on this problem was continued. There is no specific treatment for retrolent fibroplasia. In the early stages of venous dilatation, retinal edema, and serous exudation the disease may retrogress. If the retina is slightly or partly detached for a short time, it may reattach with little damage to the eye, but marked detachments lead to a loss of sight.

International Journal of Leprosy, New Orleans

21:133-294 (April-June) 1953. Partial Index

- Pan-American Classification of Forms of Leprosy. J. M. M. Fernandez.—p. 133.
 Comparison of Diaminodiphenylsulfone and Thiosemicarbazone in Treatment of Lepromatous Leprosy: Clinical and Bacteriological Evaluation in 60 Hospitalized Patients. F. Sagher and N. Brand.—p. 161.
 *Pilomotor Response to Intradermally Injected Nicotine: An Aid in Excluding Diagnosis of Leprosy. H. L. Arnold Jr.—p. 169.
 Effect of BCG in Lepromatous Cases of Leprosy. J. Lowe and F. McNulty.—p. 173.
 Histoplasmin Reaction in Leprosy Patients. S. J. Bueno de Mesquita and W. A. Collier.—p. 179.
 Study of Serum Proteins in Leprosy. S. Ishihara.—p. 187.

Pilomotor Response to Intradermally Injected Nicotine in Diagnosis of Leprosy.—Arnold points out that the pilomotor and sudomotor (gooseflesh and sweating) reactions to intradermal injections of highly diluted solutions of acetylcholine and nicotine salts have been shown to be of the nature of axone reflex responses that are abolished by denervation at the postganglionic level. Loss of the sweat response to pilocarpine or acetylcholine in leprosy has been used by many

workers as an aid in the diagnosis of that disease. It has been found useful in the study of small or nonanesthetic, hypopigmented, nonbacillate macules, and in the differentiation of the sensory dissociation of leprosy from that due to syringomyelia. Rothman suggested that the pilomotor response to intradermally injected nicotine, which is much stronger than that produced by acetylcholine or its derivatives, might be as useful as the sweat test for this purpose. Arnold describes his experiences with the intradermal injections of 1:100,000 and 1:50,000 aqueous solutions of nicotine picrate in several patients with leprosy. The pilomotor (and sudomotor) response to intradermally injected nicotine picrate in 1:100,000 solution appears to be regularly abolished by leprosy involvement of the skin, both within and near demonstrably involved areas. It is not invariably observed even in normal skin, however, and is often absent on the face. The stability of nicotine picrate in aqueous solution and the fact that only this solution and a syringe and needle are required for the test constitute distinct advantages of this test over the tests for sweat secretion. The pilomotor test shares with the sweat tests the advantage over the older histamine test of being as easy to read in highly pigmented skins as in light ones. The author concludes that a normal pilomotor (gooseflesh) response to an intradermal injection of 1:100,000 nicotine picrate solution strongly suggests that the lesion within which it occurs is not due to leprosy. Failure of the response to occur is of uncertain significance.

J. Am. Geriatrics Society, Baltimore

1:745-810 (Nov.) 1953

- Functional Digestive Disease in the Aged. S. M. Jordan.—p. 745.
 Clinical Diagnosis of Atherosclerosis of Coronary Arteries. R. E. Mason.—p. 749.
 Diabetes in the Elderly. E. C. Miller and A. Marble.—p. 755.
 Evaluation of Liver Function Tests. I. S. Ravdin.—p. 763.
 Diagnosis and Management of Acute Pancreatitis in Geriatric Patients. B. E. Brush, R. Carlson and F. Zeller Jr.—p. 766.
 Abdominal Surgery in Aged Patient. E. L. Strohl and W. G. Diffenbaugh.—p. 771.
 Management of Prostatism in Aged. N. J. Heckel.—p. 779.
 Psycho-Physical Compensatory Adjustments in Aged. E. B. Allen and H. E. Clow.—p. 785.
 Subdural Administration of Hydrocortisone in Multiple Sclerosis: Effect of ACTH. G. F. Kamen and G. L. Erdman.—p. 794.
 Aging Skin with Particular Reference to Small Growths Appearing Late in Life. E. F. Traub and H. J. Spoor.—p. 805.

J. American Med. Women's Assn., Nashville, Tenn.

8:359-392 (Nov.) 1953

- Early Case Finding in Bronchogenic Carcinoma. K. R. Boucot.—p. 359.
 *Nisentil® as an Obstetric Analgesic. A. G. Taylor, A. Young and T. Hanson.—p. 363.
 Importance of Hospital Statistics to Medical Profession. E. L. Lucia.—p. 366.

Nisentil as an Obstetric Analgesic.—This report is concerned with the use of Nisentil (1,3-dimethyl-4-phenyl-4-propionoxy-piperidine) hydrochloride, dl-alpha form, in the delivery of 44 primiparas and 56 multiparas at the hospital of the Woman's Medical College in Philadelphia. Labor was present in all cases as evidenced by effacement of the cervix with an average cervical dilatation of 4 cm. and regularly recurring uterine contractions. The drug was administered subcutaneously in doses of 40 to 60 mg. and repeated as needed for optimum analgesia. No adjuvant drug was used. Observations were made regarding adequacy of analgesia, onset and duration of action, side-effects in the mother, and evidence of fetal respiratory depression. The results obtained in these women were compared with those obtained in 75 women who received only meperidine (Demerol) and in 25 who received meperidine in combination with scopolamine. It was found that in doses of 40 to 60 mg. Nisentil hydrochloride is a satisfactory, flexible obstetric analgesic. Good to excellent results were obtained in 92 of the 100 women. There were no untoward side-effects in the mother or in the infant when the drug was given within 30 minutes of delivery. It shortens the course of labor, and its outstanding advantage is the rapidity with which maximum analgesic action is obtained.

Journal of Applied Physiology, Washington, D. C.

6:201-262 (Oct.) 1953

- Gas Transfers in Sulfur Hexafluoride Pneumoperitoneum. S. M. Tenney, F. G. Carpenter and H. Rahn.—p. 201.
- Lobar Alveolar Gas Concentrations: Effect of Reduced Lung Volumes. C. J. Martin, H. Marshall and F. Cline Jr.—p. 209.
- Respiration and Pulmonary Gas Exchange in Blast Injury. C.-J. Clemenson.—p. 213.
- Post-Tetanic Potentiation Before and During Ischemia in Intact Human Skeletal Muscle. S. Y. Botelho and L. Cander.—p. 221.
- Diffusion of Water and Water Vapor Through Human Skin. K. Buettner.—p. 229.
- Effect of Water Diuresis on Renal Excretion of Certain Urinary Solutes in Normal Man. J. R. Urbach, M. D. Phelps, W. S. Steiger and S. Bellet.—p. 243.
- Density of Body Fat in Man and Other Mammals. F. Fidanza, A. Keys and J. T. Anderson.—p. 252.
- *Comparison of Various Drugs Against Airsickness. H. I. Chinn, L. J. Milch and A. J. Dugi.—p. 257.

Drugs Against Airsickness.—Chinn and associates cite previous reports on the superiority of scopolamine hydrobromide (1 mg.) over promethazine hydrochloride (Phenergan) in the prevention of seasickness. Both compounds have also been reported of value in airsickness prophylaxis, although the scopolamine dosage employed in these cases was 0.65 mg. rather than 1 mg. In further testing these drugs with respect to airsickness, the long-acting antihistamine Postafene (*p*-chlorobenzhydryl *m*-methyl benzylpiperazine dihydrochloride) was included, because of preliminary reports indicating an extremely long protective period and a paucity of side-effects. It was found that 1 mg. of scopolamine affords greater protection against airsickness than 25 mg. of Postafene or 25 mg. of promethazine, both of which, however, significantly lower the incidence of airsickness. Postafene protects for at least 24 hours after oral administration. The side-effects produced by these drugs were slight, the most significant being an increased incidence of dry mouth after scopolamine.

Journal of Clinical Investigation, New York

32:1053-1196 (Nov.) 1953. Partial Index

- Reflection Spectrophotometric Study of Ultraviolet Erythema and Pigmentation. M. T. Jansen.—p. 1053.
- Inorganic Phosphate Response to Intravenous Glucose Administration in Progressive Muscular Dystrophy. D. W. Van Bekkum and A. Querido.—p. 1061.
- Filter Paper Electrophoresis of Human Hemoglobin. D. L. Larson and H. M. Ranney.—p. 1070.
- Concentration Gradients for Inorganic I^{131} and Chloride in Mixed Human Saliva. N. Freinkel and S. H. Ingbar.—p. 1077.
- Demonstration of Type Specific Streptococcal Antibody by Hemagglutination Technique Employing Tannic Acid.—F. W. Denny Jr. and L. Thomas.—p. 1085.
- Pulmonary Function Studies in Mitral Stenosis Before and After Commissurotomy. M. H. Williams Jr.—p. 1094.
- Effects of Venous Congestion of Limbs upon Renal Clearances and Excretion of Water and Salt: I. Studies in Normal Subjects and in Hypertensive Patients Before and After Splanchicectomy. R. W. Wilkins, C. M. Tinsley, J. W. Culbertson and others.—p. 1101.
- Effects of Antimicrobial Agents upon Choline Degradation in Intestinal Tract. J. De La Hueraga, P. György, S. Waldstein and others.—p. 1117.
- Effect of Phenylbutazone (3,5 Dioxo-1, 2-Diphenyl-4-n-Butylpyrazolidine) on Renal Clearance of Urate and Other Discrete Renal Functions in Gouty Subjects. Tsai Fan Yü, J. H. Sirota and A. B. Gutman.—p. 1121.
- *Hexamethonium in Chronic Treatment of Hypertension—Its Effect on Renal Hemodynamics and on Excretion of Water and Electrolytes. R. V. Ford, J. H. Moyer and C. L. Spurr.—p. 1133.
- Intracardiac Catheter with Inflatable Balloon for Producing Increased Venous Pressures in Venae Cavae of Man. S. J. Farber and L. W. Eichna.—p. 1140.
- Electrolyte and Water Excretions and Renal Hemodynamics During Induced Congestion of Superior and Inferior Vena Cava of Man. S. J. Farber, W. H. Becker and L. W. Eichna.—p. 1145.
- Effect of Applications of Tourniquets to Legs on Cardiac Output and Renal Function in Normal Human Subjects. F. W. Fitzhugh Jr., R. L. McWhorter Jr., E. H. Estes Jr. and others.—p. 1163.
- Influence of Glucose, Fructose, and Insulin on Metabolism of Leukocytes of Healthy and Diabetic Subjects. S. P. Martin, G. R. McKinney, R. Green and C. Becker.—p. 1171.
- Effect of Mechanical Exsufflation on Respiratory Gas Exchange in Chronic Pulmonary Emphysema. R. M. Cherniack.—p. 1192.

Hexamethonium and Renal Function in Hypertension.—After a single dose of hexamethonium administered parenterally to patients with hypertension, the glomerular filtration rate and renal plasma flow are immediately depressed. Within one hour, however, renal hemodynamic readjustment occurs and both functions return to or toward control values, although the

arterial blood pressure remains depressed for two to six hours. The present study was designed to evaluate the effects of prolonged reduction of blood pressure in hypertensive patients, with and without renal damage, during the therapeutic oral administration of hexamethonium. Patients with hypertension were studied by measurements of glomerular filtration rate (inulin clearance), renal plasma flow (*p*-aminohippurate clearance), and maximum tubular excretory capacity (Tm_{PAH}). Studies were made on renal hemodynamics of patients in the supine position and during ambulation. In the supine position, there was a reduction in blood pressure after hexamethonium without a reduction in renal plasma flow, glomerular filtration rate, or tubular excretory capacity. These observations indicate that the renal vessels in patients with hypertension are quite capable of dilating. In the ambulatory state before hexamethonium, there was a depression of glomerular filtration, renal plasma flow, and Tm_{PAH} due to vasoconstriction. After hexamethonium therapy, the ambulatory state was accompanied by a further drop in blood pressure and a reduction in renal functions quite similar to those observed in the untreated patient, but the changes were often more marked. Ambulation after the administration of hexamethonium is accompanied by a decrease in the excretion of water, sodium, and potassium. This may be due to neurogenic impulses as suggested by the depression during ambulation alone without a drop in blood pressure. Hexamethonium when used orally in the continued treatment of hypertension appears to be acceptable since none of the changes described resulted in any significant alteration of their clinical status in terms of impaired excretion of nitrogenous substances or in the retention of sodium and water. Reactivity in the recumbent position seems to compensate for the depressed function during ambulation.

Journal of Gerontology, St. Louis

8:415-554 (Oct.) 1953. Partial Index

- Treatment of Senescence in Male Rats with Sex and Thyroid Hormones and Desoxycorticosterone Acetate. V. Korenchevsky, S. K. Paris and B. Benjamin.—p. 415.
- Histochemical Studies of Pigments in Human Autonomic Ganglion Cells. N. M. Sulkin.—p. 435.
- Age Differences in Renal Tubular Response to Antidiuretic Hormone. J. H. Miller and N. W. Shock.—p. 446.
- Effect of Added Vitamin D on Calcium Balance in Elderly Males. P. G. Ackermann and G. Toro.—p. 451.
- Radio-Iodine Excretion in the Aged. P. G. Ackermann and K. Iversen.—p. 458.
- Serum Uric Acid Levels in Men and Women Past Age of 65 Years. M. M. Gertler and B. S. Oppenheimer.—p. 465.
- Study of Effects of Oral Administration of Metrazol® in Old Individuals. S. Mead, E. E. Mueller, E. P. Mason and others.—p. 472.
- When Does Old Age Begin and Worker Become Old? J. Tuckman and I. Lorge.—p. 483.
- Training in Medical Aspects of Gerontology. F. Herzberg.—p. 493.

Journal of Infectious Diseases, Chicago

93:111-206 (Sept.-Oct.) 1953. Partial Index

- Rat Virus. F. G. Novy, W. A. Perkins, R. Chambers and P. H. DeKruif.—p. 111.
- Recovery of Novy Rat Virus. R. T. Jordan, W. J. Nungester and W. S. Preston.—p. 124.
- Influence of Adrenal Cortical Extract on Antibody Formation, Including Nonspecific Anamnestic Reaction in Rabbit. A. B. Stavitsky.—p. 130.
- Incorporation of Radioactive Phosphate into Feline Pneumonitis Virus in Chick Embryo Yolk Sac. S. A. Zahler and J. W. Moulder.—p. 159.
- Transmission Experiments with Maedi (Chronic Pneumonia of Sheep). B. Sigurdsson, P. A. Pålsson and A. Tryggvadóttir.—p. 166.
- Influence of Adjuvants on Elimination of Soluble Protein Antigens and Associated Antibody Responses. D. W. Talmage and F. J. Dixon.—p. 176.
- Further Studies on Superinfection in Experimental Canine Brucellosis. E. H. Kelly, A. N. Gorelick, S. J. Silverman and W. Braun.—p. 181.
- Activity of Some Vitamin Derivatives and Related Compounds for Oral Lactobacilli. S. A. Koser and J. L. Thomas.—p. 192.

Journal-Lancet, Minneapolis

73:449-486 (Nov.) 1953

- Surgical Injuries of Ureters. C. D. Creevy.—p. 449.
- ACTH and Cortisone in Allergy. J. S. Blumenthal.—p. 455.
- Ilotycin (Erythromycin) for Fusospirochetal Infections of Oro-Pharynx. Progress Report. G. A. Cronk and D. E. Naumann.—p. 462.
- Pathogenesis of Tuberculous Ulceration of Colon and Rectum: Preliminary Report. C. C. Jackson, H. E. Bacon and H. D. Trimpi.—p. 464.

Journal of Nervous and Mental Disease, New York

118:1-96 (July) 1953

- Histogenic Principle of Microgyria and Related Cerebral Malformations. F. J. Warner.—p. 1.
- Effect of Direct Suggestion on Pain Sensitivity in Normal Control Subjects and Psychoneurotic Patients. W. P. Chapman, J. E. Finesinger and G. Chesley.—p. 19.
- "Looseness of Association" and Impairment in Abstraction in Schizophrenia. A. Meadow, M. Greenblatt and H. C. Solomon.—p. 27.
- Electroconvulsive and Insulin Coma Therapy in Presence of Active Pulmonary Tuberculosis. L. Weinstein.—p. 36.
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- Psychopathology of Insulin Therapy. E. R. Reiner.—p. 61.
- Experience with Reiter Type of Electric Coma at Boston Psychopathic Hospital. D. Landau and W. L. Holt Jr.—p. 66.
- Studies in Therapy of Parkinsonism: Panparnit. A. S. Effron.—p. 72.

Journal of Nutrition, Philadelphia

51:149-318 (Oct.) 1953. Partial Index

- Correlation Between Biological Value of Protein and Percentage of Creatinine N in Urine. J. R. Murlin, A. D. Hayes and K. Johnson.—p. 149.
- Organ Weights and Histology of Chronically Thiamine-Deficient Rats and Their Pair-Fed Controls. L. J. Pecora and B. Highman.—p. 219.
- Riboflavin Metabolism of Women on Controlled Diets. M.-L. Wu, E. Warren and C. A. Storvik.—p. 231.
- Amino Acid and Protein Content of Corn as Related to Variety and Nitrogen Fertilization. H. E. Sauberlich, Wan-Yuin Chang and W. D. Salmon.—p. 241.
- Effect of Mucin on Growth of Rats Fed Simulated Human Milk. R. M. Tomarelli, E. Linden, G. T. Durbin and F. W. Bernhart.—p. 251.
- Metabolism of Fluorine in Bones of Fluoride-Poisoned Rat. R. F. Miller and P. H. Phillips.—p. 273.
- Liberation and Measurement of Pantothenic Acid in Animal Tissues. B. S. Schweigert and B. T. Guthneck.—p. 283.
- Molybdenum Toxicity in Rabbit. L. R. Arrington and G. K. Davis.—p. 295.

Journal of Pediatrics, St. Louis

43:499-630 (Nov.) 1953

- *Developing Fundus Oculi of Premature Infant and Its Relationship to Retrolental Fibroplasia. M. C. Fletcher.—p. 499.
- Salmonellosis Complicated by Pancarditis: Report of Case with Autopsy Findings. G. R. Hennigar, R. Thabet, W. E. Bundy and L. E. Sutton Jr.—p. 524.
- Treatment of Tuberculous Meningitis in Children. E. L. Kendig Jr., R. Ownby Jr., G. E. Trevathan and L. E. Sutton Jr.—p. 532.
- *Therapeutic Doses of Gamma Globulin in Treatment of Measles Encephalitis and Encephalomyelitis: I. Clinical Study of 41 Cases with Follow-Up Studies. L. Odessky, A. V. Bedo, K. G. Jennings and others.—p. 536.
- Mesenteric Occlusion in Newborn Infant. H. B. Rothschild, A. Storck and B. Myers.—p. 569.
- Varicella in Newborn Twins. J. N. Middelkamp.—p. 573.
- Adrenal Cortical Steroids in Management of Case of Meningococcemia. F. Baumann, D. E. Pearson and M. Levin.—p. 575.

The Fundus Oculi of the Premature Infant and Retrolental Fibroplasia.—Follow-up studies on 117 prematurely born infants discharged from the Jefferson Davis Hospital prior to 1950 disclosed none with residual lesions of retrolental fibroplasia. The first appearance of this disease coincided with the establishment of a modern, well-equipped premature unit and improvement in survival rate. Since April, 1950, periodic examinations of the fundi of 320 premature infants have been made. Most of these infants weighed less than 1,700 gm. at birth. The ophthalmoscopic examinations disclosed that very small premature babies are born with an immature fundus that passes through a transitional stage before reaching the mature fundus similar to that of the full-term infant. After maturation, the eye may remain normal or may progress on to show the early changes of retrolental fibroplasia. The early changes in turn may reverse spontaneously or may progress to varying degrees of visual impairment. Of the 320 infants examined, 86 had retrolental fibroplasia, 38 of whom developed massive retinal edema with detached retinas and malignant hemorrhages. There was a significantly increased incidence of retrolental fibroplasia in the white and boy infants, which may possibly be related to a greater immaturity and poorer survival rate. The smallest infants and those with the most immature fundi at birth are the ones in whom severe retrolental fibroplasia with its resulting blindness is most likely to develop. Evidence is presented to show that the small premature infant

and those infants with severe retrolental fibroplasia have a high and fluctuating myopia, which may remain as a residual lesion. The author also comments on the parts played by (1) relaxed tone of blood vessel walls, (2) increased arterial tension, and (3) decreased peripheral resistance in the pathogenesis of the early stages of retrolental fibroplasia. It could not be demonstrated, within the limits of this study, that they were of significance. With regard to the possible role of excess or deficiency of oxygen, the author points out that the fetus in utero lives in an atmosphere of lowered oxygen tension. During exposure of the infant to 40 to 60% oxygen atmospheres in incubators, maturation of the eye is carried on in the presence of a higher oxygen tension than would be present in utero. Gyllenstein recently demonstrated that an atmosphere excessive in oxygen does have a deleterious effect on the eyes of newborn mice. Rapid oxygen withdrawal may also be of importance. From the observations presented, the author concludes that retrolental fibroplasia appears to result from an as yet unknown factor or series of unknown factors affecting an immature eye that is passing through a period of critical differentiation and maturation.

Gamma Globulin in Measles Encephalitis.—The first 590 cases of measles encephalitis and encephalomyelitis reported in the literature are reviewed. These encephalitic forms occur in about 0.3% of patients with measles, and the mortality rate in these forms is about 15%. The following theories have been propounded to explain the involvement of the central nervous system: (1) the measles virus acquires neurotropic characteristics; (2) some latent virus is activated by the primary disease; (3) toxins in the central nervous system produce the encephalitis; and (4) the encephalitis is an allergic or anaphylactic reaction to the measles virus. Odessky and his associates say that many authors are of the opinion that there is no definite evidence to support any of these theories, and they suggest the following additional hypotheses. 1. Because of a previously poor nutritional state, fever, and general debility from the attack of measles, the hematoencephalic barrier becomes more permeable, resulting in the invasion of the central nervous system by the virus. 2. The patient is not able to produce sufficient antibodies, that is, he does not have the faculty to acquire immunity as rapidly as do 99.7% of patients with measles. 3. There are rare persons who cannot establish acquired immunity because of an inability to produce antibodies. 4. There is a possibility that the antibodies, which are probably protein substances, have an affinity for a protein molecule and are destroyed more rapidly than they are formed because of the fever. In connection with this last point, the authors comment on the use of gamma globulin, which was used in the majority of the 41 patients with measles encephalitis and encephalomyelitis that are presented in this paper. Fifteen of these received 20 cc. or more of gamma globulin early in the acute phase (a total dosage of from 0.43 to 1.1 cc. per pound of body weight); 12 patients received from 4 to 16 cc. of gamma globulin early in the acute phase (a total dosage of from 0.07 to 0.30 cc. per pound of body weight); and 14 patients were not treated with gamma globulin in the acute phase. The results were better in the first than in the other two groups. This group had a greater recovery rate, less numerous and less severe sequelae, a normal temperature by the third day, a shorter hospital residence, no fatalities, and no secondary pneumonia. These patients made remarkable recoveries in view of the extensive nervous system involvement. Four patients received gamma globulin alone in the acute phase and made the same rapid recovery as those given antibiotics or sulfonamide drugs in addition. There were no local or systemic reactions to therapeutic doses of gamma globulin. The recommended dose is 1 cc. per pound of body weight, given intramuscularly in divided doses, over a 36 to 48 hour period, as soon as the signs and symptoms of central nervous system involvement are manifest. The patients should receive in addition to gamma globulin adequate fluid and electrolytes, oxygen, antipyretic therapy, suction, balanced feedings, sedatives as needed, magnesium sulfate, antibiotics, and sulfonamide drugs. The authors suggest that gamma globulin can be used in complications of the central nervous system from viral diseases other than measles.

J. Pharmacology & Exper. Therapy., Baltimore

109:233-366 (Nov.) 1953. Partial Index

- Importance of Metabolic Pathways for Positive Inotropic Actions of Cardiac Glycosides and Calcium Ions. S. Ellis.—p. 233.
- Action of Veritoid on Carotid Pressoreceptors. C. C. Gruhzit, W. A. Freyburger and G. K. Moe.—p. 261.
- Effects of Epinephrine and Typhoid Vaccine on Segmental Vascular Resistances in Human Kidney. M. H. Maxwell, D. M. Gomez, A. P. Fishman and H. W. Smith.—p. 274.
- Persistence of Mental Impairment Following Hypnotic Dose of Barbiturate. J. M. von Felsinger, L. Lasagna and H. K. Beecher.—p. 284.
- New Technique for Simultaneous Recording of Oxygen Consumption and Contraction of Muscle: Effect of Ouabain on Cat Papillary Muscle. K. S. Lee.—p. 304.
- Distribution and Excretion of C^{14} Labeled Priscoline-HCl in Rats. B. Century, L. E. Ellinwood, J. D. Kohli and J. M. Coon.—p. 318.
- Effect of Isomers of Amphetamine and Desoxyephedrine on Gastric Emptying in Man. D. W. Northup and E. J. Van Liere.—p. 358.
- Inhibitory Effects of Colchicine on Gastric Secretion Produced by Histamine and other Secretagogues. W. Koskowski and M. Mahfouz.—p. 361.

Kansas Medical Society Journal, Topeka

54:453-500 (Oct.) 1953

- Medical Organization for Civil Defense. T. R. Hood and J. M. Mott.—p. 454.
- Public Health Lessons of Kansas Disasters. T. R. Hood.—p. 467.

54:501-544 (Nov.) 1953

- The Peptic Ulcer Problem: Review of 516 Surgical Cases. R. L. Sanders.—p. 501.
- Toxemia of Pregnancy. F. R. Lock.—p. 505.
- Cardiovascular Laboratory, University of Kansas Medical Center: Report of Activities of First 24 Months, May, 1951-May, 1953. E. G. Dimond, C. F. Kittle and T. K. Lin.—p. 509.

Kentucky State Medical Assn. Journal, Bowling Green

51:473-518 (Nov.) 1953

- *Some Aspects of Heart Disease from Viewpoint of Patient. P. Simpson.—p. 473.
- Use of Tantalum Mesh in Hernia Repair. D. W. Barrow.—p. 477.
- Basis for Sex Education of Young Adults. H. B. Martin.—p. 480.
- PR Profits. L. E. Brown.—p. 483.
- Recent Concepts of Prophylaxis in Anterior Poliomyelitis. J. E. Bickel.—p. 489.
- Chest Injuries. R. W. Robertson.—p. 491.
- Bronchial Obstruction: Its Significance in Pulmonary Disease. P. H. Holinger.—p. 494.

Heart Disease from Viewpoint of Patient.—Simpson emphasizes that in spite of all research and progress in the advancement of the knowledge of the treatment of cardiovascular disease, complete success is not possible when all attention is directed primarily to the disease itself. The problem is not one of merely keeping the patient alive but should include efforts to make him live as comfortably and usefully as is possible. To do this we must not forget to consider heart disease from the viewpoint of the patient. We must be able to anticipate his fears and anxieties. When we order him placed in an oxygen tent, we should tell him why. When we say he will need so many weeks of bed rest and inactivity, he should be told why. When we insist that he lose weight or change his habits or working conditions, he is entitled to know and understand the reasons.

Medical Annals of District of Columbia, Washington

22:581-638 (Nov.) 1953

- Conversion Reactions. H. P. Laughlin.—p. 581.
- Fever as Symptom: Pediatric Diagnostic Signpost. C. T. Isaacs.—p. 595.
- Reaction to Diphenyl Hydantoin Sodium: Report of Case Simulating Rocky Mountain Spotted Fever and Review of Literature. S. H. Steinberg.—p. 600.
- *Norepinephrine in Treatment of Waterhouse-Friderichsen Syndrome: Report of Case. T.-C. Chou and S. G. Anagnos.—p. 604.
- *E. Coli Meningitis: Report of Case Successfully Treated with Streptomycin and Terramycin. W. Pease and J. T. Alexander.—p. 608.

Nor Epinephrine in Waterhouse-Friderichsen Syndrome.—A fatal case of fulminating meningococcal bacteremia with Waterhouse-Friderichsen syndrome is described in a 53-year-old woman. Control of infection, shock, and adrenal insufficiency

were the three essential objectives in the treatment of the patient. For the control of infection an initial dose of 6 gm. of sulfadiazine sodium was given intravenously in 1,000 cc. of 5% dextrose in isotonic sodium chloride solution, and subsequent dosage of this drug was guided by blood level determinations at intervals of four to six hours, aiming at a range of 15 to 20 mg. per 100 cc. of blood. One million units of aqueous penicillin was given every two hours intramuscularly after an initial dose of 500,000 units given intravenously. The infection was brought under control, since cultures of heart blood and cerebrospinal fluid at autopsy grew no organism. Shock and adrenal insufficiency remained the major problems and were responsible for the fatal outcome despite treatment with aqueous adrenal cortical extract given intravenously and additional cortisone given intramuscularly. Arterenol (nor-epinephrine) was administered in the intravenous fluids in a concentration of 4 mg. per liter of fluid. A prompt pressor response was obtained from this; the blood pressure rose from an unobtainable level to 100/60 mm. Hg almost immediately and was maintained at a satisfactory level after an optimal speed of the drip had been attained. In the course of the first 24 hours of hospitalization a total of 5,300 cc. of fluid was given including dextrose, sodium chloride, and plasma. Despite this, only 180 cc. of urine was excreted, and consequently the volume of fluid administered was thereafter kept at a minimum and arterenol had to be administered in a much higher concentration than usual if its pressor effect was to be maintained; 24 mg. (24 cc.) of arterenol thus was introduced into each 1,000 cc. of fluid, instead of the usual 4 mg. per liter. A total of 1,600 cc. of fluid was given during the second 24 hour period. The urinary output remained scanty. No signs of venospasm or phlebitis along the polyethylene catheter, through which the infusion was given, were observed. Prompt elevation of the blood pressure was obtained each time after the normal speed of the drip was assumed following interruptions of flow by the administration of other medications and procedures. Such immediate and continuous easily controllable effect has obvious advantages over other agents previously used. It is hoped that other workers may explore the use of arterenol in order to clarify its place in treatment.

Escherichia Coli Meningitis.—In a 33-year-old man with concurrent pyelonephritis, Escherichia coli bacteremia, and meningitis, combined antibiotic treatment was started with intravenous administration of sulfadiazine, streptomycin, and large doses of penicillin while awaiting the results of spinal fluid and blood cultures. The following morning these cultures were positive for E. coli; penicillin was then discontinued and replaced with oxytetracycline (Terramycin) given intravenously. For the first four hospital days, the patient who had been a heavy drinker for several years remained confused and lapsed periodically into delirium tremens. The temperature returned to normal by the end of the fourth day. The spinal fluid cleared gradually, showing 103 cells on the fifth day and 14 cells on the 12th day. All blood and spinal fluid cultures were negative after treatment was started. The patient was discharged free of infection after 27 days of hospitalization. Data are presented of 35 cases of E. coli meningitis in adults, children, and infants collected from the literature since 1941. Fourteen of the 35 patients died, a mortality rate of 40%. Ten of the 14 deaths occurred in patients with penetrating war wounds of the head and spine complicated by meningitis and treated with sulfadiazine and penicillin in addition to any necessary surgery.

Nebraska State Medical Journal, Lincoln

38:385-420 (Nov.) 1953

- Newer Concepts of Diabetes Mellitus. C. R. Hankins.—p. 387.
- Control of Diabetes. M. Margolin.—p. 392.
- Lesions of Feet in Diabetes. F. L. Rogers.—p. 396.
- Springdale Camp for Diabetic Children. M. Crofoot and A. Murphy.—p. 397.
- Management of Common Eye Conditions. J. H. Judd.—p. 400.

Neurology, Minneapolis

3:789-870 (Nov.) 1953

- Variability of Course of Guillain-Barré Syndrome. B. Boshes and I. C. Sherman.—p. 789.
 Diagnostic Value of Skin Discolorations in Neurology. H. C. Leavitt.—p. 800.
 Hypoglycorrhachia of Non-Infectious Origin: Diffuse Meningeal Neoplasia. L. Berg.—p. 811.
 Management of Chromophobe Pituitary Adenoma. C. F. List.—p. 825.
 Experimental Intracisternal Injection of Polymyxin B; Its Role in Treatment of Septic Meningitis. P. Teng and B. A. Johnson.—p. 831.
 Stimulation of Hippocampus and Medial Cortical Areas in Unanesthetized Cats. B. R. Kaada, J. Jansen Jr. and P. Andersen.—p. 844.

New England Journal of Medicine, Boston

249:673-714 (Oct. 22) 1953

- Significance and Treatment of Polyps of Colon and Rectum. N. W. Swinton and W. A. Doane.—p. 673.
 Work Week of Physicians in Private Practice. H. A. Rusk, H. S. Diehl, R. W. Barclay and P. K. Kaetzel.—p. 678.
 Clinical Experiences with New Orally Administered Mercurial Diuretic. E. Bresnick and J. Abramson.—p. 681.
 Boston Medical Library: Report of Librarian. H. R. Viets.—p. 685.
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 Voluntary Death by Breath Holding. V. J. Derbes and A. Kerr Jr.—p. 698.

249:715-750 (Oct. 29) 1953

- Relief of Pulmonary Hypertensive Pain After Mitral Commissurotomy. E. J. Mears, W. P. Harvey and C. A. Hufnagel.—p. 715.
 Cesarean Sections at Beth Israel Hospital, 1950-1953. H. W. Rubin, L. Burke and H. H. Rosenfeld.—p. 719.
 Gastric Ulcer—Benign or Malignant: Preliminary Report of Roentgenologic Study. F. Abbot and S. Blank.—p. 722.
 Allergic Reactions to Bee and Wasp Stings. H. L. Mueller and L. W. Hill.—p. 726.

249:751-790 (Nov. 5) 1953

- *Acute Pancreatitis: Fate of Patient Surviving One or More Acute Attacks. J. W. Raker and M. K. Bartlett.—p. 751.
 Clinical Studies with Carbomycin. P. R. Manning, P. N. Jones and R. S. Bigham Jr.—p. 758.
 *Significance of Aschoff Bodies in Left Atrial Appendage: Comparison of 40 Biopsies Removed During Mitral Commissurotomy with Autopsy Material from 40 Patients Dying with Fulminating Rheumatic Fever. W. A. Thomas, J. H. Averill, B. Castleman and E. F. Bland.—p. 761.
 Food Poisoning. K. F. Meyer.—p. 765.
 Incarcerated Diaphragmatic Hernia of Colon Occurring During Pregnancy. W. Hobbins and C. Hurwitz.—p. 773.

Acute Pancreatitis.—Of 134 patients with acute pancreatitis admitted to the Massachusetts General Hospital between 1946 and 1951, 16 died during the acute attack, a mortality rate of 12%. Compared with previous experience, this improved mortality reflects the use of antibiotics, as well as other advances in diagnosis and treatment. Of the 118 patients who survived the acute attack, 42 had no definitive treatment. Ten of these 42 patients could not be traced or had short follow-up periods that were inadequate for evaluation; 4 patients died of causes unrelated to the gastrointestinal tract; 32 patients were followed up for 12 to 60 months; and 22 of these had no similar attacks and were classed as having obtained good results. In four patients with vague upper abdominal complaints, the results were considered fair, and in 6 with recurrent symptoms the results were classified as poor. Thirteen of the 42 patients had had more than five previous attacks; 6 of these had no further attacks; 2 had vague symptoms; and 5 continued to have similar attacks. Thus, in the untreated patients the poorer results seem to correlate roughly with a greater number of preceding attacks; results in these patients with many previous attacks were quite unsatisfactory when no corrective surgery was attempted. This contrasted sharply with the results in the 76 patients treated after the acute attack. Of these, cholecystectomy and choledochostomy were performed at varying intervals in 59, miscellaneous surgical procedures were carried out in 13 and choledochostomy in 4 who had had a previous cholecystectomy. Fifty-one of the 59 patients were followed for 12 to 72 months; results were good in 47, fair in 2, and poor in 2. Of 35 patients who had had more than five previous attacks, 28 were followed up for one year or more, results being considered good in 26 and fair in 2. Thus patients treated by cholecystectomy and choledochostomy did surprisingly well. The two so treated who

continued to have serious attacks of pancreatitis were the only patients in whom patency of the ampulla was never established. Cholecystectomy and choledochostomy are most effective in patients in whom recurrent attacks of pancreatitis have not produced permanent changes such as calcification in the pancreas. An alert attitude is urged in the detection of attacks of acute pancreatitis and appropriate surgery on the biliary tree after the acute attack has subsided. This program seems to offer the best approach to the prevention of the serious late manifestations of recurrent pancreatitis that are so difficult to manage.

Aschoff Bodies in Left Atrial Appendage.—Aschoff lesions are manifestations of tissue reaction to injury. Convincing evidence has been presented that they are specific for rheumatic fever. The authors studied the hearts of 40 patients who died of severe fulminating rheumatic fever. In 29 of the 40 hearts, one or more Aschoff lesions were found in the atrial appendages; 25 (85%) also had the lesions in the routine necropsy sections. The incidence of these lesions in the left atrial appendage thus correlated closely with that of similar lesions elsewhere in the heart. These findings were compared with those in surgical specimens removed by biopsy during mitral commissurotomy in 40 patients with mitral stenosis who showed no recognizable clinical or laboratory signs of recent rheumatic activity. Aschoff lesions and other microscopic changes in the atrial appendages were identical in both groups. No similar lesions were observed in patients without rheumatic fever or in nine patients with rheumatic heart disease who survived beyond the fifth decade and whose hearts were available for comparison. The conclusion seems inescapable that the presence of Aschoff bodies in the atrial appendage of the surgical specimens indicates some degree of rheumatic activity. Recent observations during the postoperative phase lend clinical support to this concept.

North Carolina Medical Journal, Winston-Salem

14:541-592 (Nov.) 1953

- Role of Private Practitioner and Public Health Officer in Mental Health Problems. P. V. Lemkau.—p. 541.
 Public Health and Private Physician: Obligations and Opportunities. J. R. Bender.—p. 545.
 Roentgen Findings in Congenital Deformities of Hip Joints and Lower Extremities. J. L. Goldner.—p. 549.
 *Diagnosis of Legg-Perthes' Disease. C. F. Siewers.—p. 560.
 Appraisal of Methods of "Improving" Cerebral Blood Flow. J. B. Pfeiffer Jr.—p. 564.
 Use of Concentrated Human Serum Albumin in Management of Increased Intracranial Pressure: Preliminary Report. C. H. Davis Jr., J. Stoll Jr. and E. Alexander Jr.—p. 569.
 Indications for Cardiac Catheterization and Angiocardiology. J. V. Warren.—p. 574.
 Fundamental Concepts in Treatment of Allergic Disease. J. M. Painter.—p. 576.
 Friedlander's Meningitis: Report of Case Complicating Friedlander's Pneumonia with Recovery. G. Anderson and E. Yount.—p. 578.

Legg-Perthes' Disease.—Siewers says that although the etiology of osteochondritis deformans coxae juvenilis is unknown, the pathogenesis is well understood. It is a circulatory impairment of the head and neck of the femur, resulting in capsular soft tissue congestion and later in aseptic necrosis and degeneration of the femoral head. In varying lengths of time the avascular head is replaced with granulation tissue, and osteogenesis follows, with reconstruction of the bony components. This cycle may take from three to four years to be completed and can be followed by means of serial roentgenograms. The first symptom is usually a limp, neither severe nor disabling but more noticeable with fatigue or increased physical stress. Pain may or may not be present; if it is, the site is more frequently in the knee than the hip. Clinical examination usually shows muscle spasm about the hip. Treatment should be begun as soon as the disease is suspected and discontinued only when the roentgen and clinical findings do not substantiate the diagnosis. The main object of treatment is to prevent weight bearing. Traction with bed rest may be used in the early stages. After regeneration has begun, the use of crutches or an ischial weight-bearing brace until the femoral head is recalcified is the most generally accepted program of treatment.

FOREIGN

Acta Medica Scandinavica, Stockholm

147:79-190 (No. 2) 1953. Partial Index

- Investigation into Treatment of Pulmonary Emphysema with Artificial Pneumoperitoneum. G. A. Zak and N. Southwell.—p. 79.
- Functional Studies of Kidney Autotransplanted to Neck of Dogs. W. J. Dempster and A. M. Joekes.—p. 99.
- Effect of Adrenalectomy, Cold Stress and Postoperative Treatment with Cortisone on Mean Lymphocyte Diameter in Rat. C. A. Hernberg.—p. 149.
- Thyrototoxicosis of Cerebral Origin. K. Iversen.—p. 157.
- *Polyneuritis Caused by Hydrazide of Isonicotinic Acid: Report of 7 Cases. O. Höök.—p. 167.
- Effect of Tetraethylammonium Bromide (Etylon) on Cardiac Asthma and Acute Pulmonary Oedema. T. Hilden.—p. 175.

Polyneuritis Caused by Isoniazid (Isonicotinic Acid Hydrazide).

—Höök had the opportunity to examine a number of patients in whom treatment with isoniazid (isonicotinic acid hydrazide) gave rise to various neurological disorders. In this report he is concerned with one form of these neurological disorders, the peripheral neuropathic variety. The histories of seven patients are presented, all except one of whom were given isoniazid in combination with either *p*-aminosalicylic acid or dihydrostreptomycin. There was nothing to indicate that this combination therapy favored the development of the polyneuritic symptoms. Polyneuritis developed on an average of two months after the commencement of treatment with isoniazid. Clinical experience and experimental investigation have demonstrated that in certain forms of polyneuritis, as in poliomyelitis, the greater the degree of physical activity in the initial stages the greater is the likelihood of nerve injury. Such a relationship was not observed in the present series. Neither did there seem to be any relationship between the patient's general condition and the appearance of polyneuritic symptoms. This neuropathy or polyneuritis is characterized by predominantly sensory symptoms usually symmetrically distributed in the distal parts of the extremities, as a rule in the lower limbs. The principal features are impairment of postural sensibility and appreciation of vibration, hyperalgesia in the soles of the feet, and, in some cases, paresis of the distal muscles. The electromyogram shows a typical peripheral nerve lesion. In the majority of the cases observed, the symptoms were mild and regressed fairly rapidly after discontinuance of the therapy. Paresthesias appear to be the first symptoms of polyneuritis. The risk of severer damage to the peripheral nerves makes the appearance of these symptoms the signal for close observation.

Archives des Maladies du Coeur, Paris

46:865-960 (Oct.) 1953. Partial Index

- Left Ventricular Subendocardial Ischemia and Coronary Insufficiency. P. Chiche, J. Baillet and Verdun di Cantogno.—p. 865.
- *Tobacco and Coronary Vessels. H. Fabre and Y. Linquette.—p. 898.
- Peroperative Recording of Cardiovascular Pressures. P. Bouchard, P. Laurens and E. Allard.—p. 905.
- *Cerebral Pause During Clamping of Aorta Under Hibernation. G. Minot.—p. 922.

Tobacco and Coronary Vessels.—The electrocardiographic manifestations following the inhalation of tobacco smoke were studied in normal dogs and in dogs with ligated coronary arteries. The dogs were anesthetized by intravenous injection of pentobarbital (Nembutal) or chloralose; a tracheal cannula of the type used for closed-circuit anesthesia was inserted; and inhalation of the smoke was then secured by placing a cigarette in a holder at the free end of the cannula. The cigarette was repeatedly withdrawn after the animal had completed an inspiration and was replaced after one or two normal respirations until one or two cigarettes were consumed, thus reproducing the conditions found in habitual smokers. Disturbances of rhythm were purposely ignored in evaluating the results; only those changes directly attributable to the effect of the smoke on the coronary vessels were taken into consideration. Electrocardiographic changes consisted of alterations in the shape and direction of the T-waves and prolongation of the ST intervals. They occurred with comparable frequency in both the normal dogs and those with coronary ligatures, but were not constant

in either. Similar results were obtained in tests on men with and without coronary disease, indicating that individual susceptibility to tobacco smoke may occur in both man and dogs, conditioned, apparently, by the receptive and reactive state of the nervous system.

Cerebral Pause During Clamping of Aorta Under Hibernation.

—The effect on cerebral activity produced by clamping the aorta of rabbits subjected to artificial hibernation varies with the duration of the clamping. The electroencephalogram of a rabbit subjected to hibernation at a temperature of 32 C resembles that characteristic of deep sleep with slow delta waves of great amplitude, separated occasionally by waves that are slightly more rapid but never so frequent as those found in the waking subject. Clamping of the aorta produces an immediate change in the tracing: within 10 seconds, the rapid waves disappear, very slow waves persist for another 4 seconds, and then, 14 seconds after the application of the clamp, there is an almost complete cessation of all electrical activity that lasts for 12 seconds. Absolute silence follows. Removal of the clamp after a cerebral pause of 1½ minutes is followed 14 seconds later by the resumption of cerebral activity similar to that seen initially. These changes indicate that the circulatory arrest produced by the clamping results in apparent death of the brain at the end of 14 seconds and that normal cerebral activity is restored when the circulation is reestablished. Repetition of the experiment in the same rabbit a few moments later again produced a cerebral pause at the end of 14 seconds; this time, however, the clamp was left in place for 3 minutes. Electrical activity was not resumed until 3 minutes after the clamp had been removed, and when it did reappear it was entirely different in character. These experiments were repeated with the animals at temperatures of 25 and 20 C, and in each case the cerebral pause was followed by renewed activity. At these low temperatures, however, the electroencephalographic rhythm both before and after clamping differed from that found in normal sleep. The cerebral pause, showing failure of ventricular systole, is a danger signal, and when it appears in the electroencephalograms immediate steps should be taken to reestablish the circulation before the cerebral changes become irreversible, especially if the electrocardiograms show a concurrent cessation of cardiac activity. These findings, which have great practical value for the management of artificial hibernation in general, are particularly important when cardiovascular operations are to be undertaken.

Ärztliche Wochenschrift, Berlin

8:1065-1088 (Nov. 6) 1953. Partial Index

- *Clinical Aspects and Pathogenesis of "Malignant" Synoviomas. K. D. Ebbinghaus.—p. 1071.
- Renal Changes and Studies with the Phase Contrast Microscope on the Islands of Langerhans in Patients with Diabetes Mellitus. G. Suchowsky.—p. 1076.
- *Are Sunglasses Dangerous? W. Hoffmann.—p. 1079.
- Duration of Elimination of Bacteria by Healthy "Temporary" Carriers of Salmonella Organisms. E. Kröger.—p. 1083.

Clinical Aspects and Pathogenesis of "Malignant" Synoviomas.

—Ebbinghaus presents the histories of three patients with synoviomas who were observed at his clinic in recent years. The first patient was a woman, aged 30, in whom a tumor had developed on the left ankle joint in the course of two years, causing few symptoms. The tumor was removed, and operation revealed that it originated from the tendon sheath of the peroneus longus. Histological studies disclosed a synovioma. Two years have elapsed since operation, and there has been no local recurrence or metastases. The second patient, a woman 75 years old, had observed for two months the development of a tumor on the right side of the abdomen. This tumor originated from the fascia of the obliquus externus abdominis. Despite radical removal, a recurrence the size of a fist developed in the course of 10 weeks. After two more weeks, multiple pulmonary metastases were demonstrable. The patient died within six months. This course proved the malignancy of the tumor. In the third patient, a man, aged 36, a new tumor developed within four years after the removal of

the primary tumor. The removal of this recurrence was followed by a second one within eight weeks. The leg was amputated, but four months later a pulmonary metastasis was removed. Additional metastases were observed in the arm. The disease was fatal within six years of the development of the primary tumor. The author points out that synoviomias were first described by von Langenbeck in 1865 and that the best recent review is that by Lauche of Frankfurt. This author examined a number of specimens that other investigators designated as adamantinomas of the extremities, but by histological studies Lauche was able to identify them as synoviomias. The lesion has also been designated as synovioplastic sarcoma. The diagnosis of malignant synoviomias can be established only by histological studies. These reveal, in addition to portions resembling spindle cell sarcomas, cysts and clefts containing synovial tissue and around these dense spindle cell casings. These tumors originate most frequently from the bursas of the knee joint, but they are also observed on articular capsules and on tendon sheaths. Malignant synoviomias do not infiltrate their surroundings, but on the basis of their clinical behavior they must be regarded as malignant, because they produce distant metastases and also local recurrences. Whenever a tumor develops on a tendon sheath, a bursa, an articular capsule, or in fascia, malignant synovioma should be suspected and total extirpation should be resorted to at once. Because of the danger of local recurrences, the patient must be kept under close observation.

Are Sunglasses Dangerous?—Hoffmann points out that some advertisements for sunglasses assert that some of the cheaper types of glasses are dangerous, because they permit the penetration of harmful, invisible light into the eye, and they distort the picture and the colors. Investigations and general experience, however, have proved that daylight at low altitudes is harmless and that, therefore, there is no need to protect the eye against it. The author shows that the other criticism is also excessive and one-sided and that there is no reason to be concerned about harmful effects of cheap sunglasses.

British Journal of Industrial Medicine, London

10:217-298 (Oct.) 1953

Method of Relating Incidence of Pneumoconiosis to Airborne Dust Exposure. S. A. Roach.—p. 220.

Nature of Variability of Dust Concentrations at Coal Face. P. D. Oldham.—p. 227.

Importance of Time Factor in Measurement of Dust Exposure. B. M. Wright.—p. 235.

Airborne Dust in Coal Mines: Sampling Problem. W. M. Long.—p. 241.

Mortality in Relation to Physical Activity of Work: Preliminary Note on Experience in Middle Age. J. N. Morris and J. A. Heady.—p. 245.

Health Problems in Manufacture and Use of Plastics. D. K. Harris.—p. 255.

*Age and Work: Study of 489 Men in Heavy Industry. I. M. Richardson.—p. 269.

Age and Work in Heavy Industry.—Richardson comments on the tremendous and steadily increasing burden represented by retirement pensions and on the fact that an extension of working life beyond the present conventional retiring age would both reduce national expenditure and increase national income. The study here reported was designed to explore the answers to questions relevant to the relation between age and heavy work. Investigations were made in two foundries and a coal mine in which 489 men aged 50 years and over were interviewed. Within the limits imposed by the fact that older persons at work are highly selected, it is shown that the proportion of men on heavy work declined from the age of 50, and with this move off heavy work there was frequently a reduction in skill. Illness or injury was associated with two-thirds of the changes to lighter work. These and other events acted as "trigger factors." The need is stressed for some reduction in work tempo as age increases, and the view is expressed that such reduction should not be at the expense of skill. The problem of the relation of age and work appears some years earlier than pensionable age. The similarity between the trends with age in unemployment, retirement, and changes to lighter work is discussed.

British Journal of Radiology, London

26:553-608 (Nov.) 1953

Macroradiography (Enlargement Technique) in Radiology of Ear, Nose and Throat. E. Samuel.—p. 558.

Study of Phases of Radiation Response in Rat: II. Effects of Non-Uniform Irradiation. L. F. Lamerton, L. A. Elson and E. B. Harriss.—p. 568.

*Multiple Metaphyseal Fractures in Small Children (Metaphyseal Fragility of Bone). R. Astley.—p. 577.

Microangiographic Study of Minute Ovarian Blood Vessels in Albino Rats. S. Bellman, E. Block and E. Odeblad.—p. 584.

*Occupational Lung Damage in Ships' Repairers. L. Dunner, M. S. Hicks and D. J. T. Bagnall.—p. 590.

Tolerance in Humans of Intrabronchially Administered Radioactive Silver-Coated Gold Colloids. P. F. Hahn, G. W. Hillard and E. L. Carothers.—p. 595.

Effect of Low and High X-Ray Dosage on Ascorbic Acid Content of Suprarenal. A. Hochman and L. Bloch-Frankenthal.—p. 599.

Multiple Metaphyseal Fractures in Small Children.—The occurrence of a generalized bone disease is described in six children, all with onset in the first two years of life. The condition was characterized by multiple metaphyseal fracture-like defects and also by fractures of a more usual type. In each child, the two most striking clinical features were the absence of a history of adequate trauma to account for the widespread lesions and the slight degree of pain and general disturbance produced. The multiplicity of metaphyseal defects and fractures was only evident on roentgenologic examination; most of the abnormalities were undetected clinically. The fractures of more usual type occurred in both flat and tubular bones. The ribs were the commonest site, but the clavicle, femur, tibia, and spine were also involved. Union occurred normally. The multiple metaphyseal defects constituted the most typical radiological feature. They were present at the ends of several of the long bones. They showed as translucent zones, "cutting off a corner" of the bone end. Often it could be seen that a separated fragment was a crescentic portion of the periphery of the metaphysis, sometimes slightly displaced. The defects sometimes disappeared without residual abnormality and reappeared over a period of several months; at other times considerable subperiosteal and soft tissue calcification followed; then healing led to residual cortical thickening and irregularity of contour at the ends of the bone. The reaction around many of the defects indicated that these were of the nature of fractures. The appearances sometimes suggested the possibility that the translucent zones constituted lines of weakness through which there occurred slight fracture separations, with accompanying formation of hematoma. The cause of the syndrome is not known.

Occupational Lung Damage in Ship Repairers.—Of 31 men between the ages of 41 and 73 years, calling themselves by the abbreviated misleading term of boilermakers, but carrying out the repair of ships as riveters, holders-up, rivet heaters, burners, platers, and caulkers, with clinical signs such as cough, stained sputum, dyspnea, and chest pain, 24 showed definite roentgenologic changes in their lungs and 7 did not. In dislodging and burning ship plates and rivets, dust and fumes rising from various materials with which the plates are lined were inhaled by the repairers who had to work in confined spaces. Roofing felt and bitumastic, a hard asphaltic compound, with which the ship plates were lined, were found to include 56% of total silica and 30% of free silica. In addition there was the dust, consisting mainly of iron compounds, created by chipping scale from plates and rivets. The following roentgenologic lesions were noted: (1) increased lung striations only; (2) more pronounced lung reticulation combined with nodulation; (3) pronounced irregular fibrosis without any other apparent lesions; (4) a combination of reticulation, irregular fibrosis, and nodules of varying size; and (5) emphysema. These lesions were or were not accompanied by significant clinical signs or symptoms or incapacity. Until pathological evidence is available in such cases, one must refer to these lesions as lung damage, but not as pneumoconiosis or silicosis. It should be noted, however, that analysis of the various dusts inhaled by these men revealed the presence of both free silica and iron compounds. Of the seven men without definite roentgenologic changes, some had few clinical signs or symptoms, while others had severe symptoms, predominantly dyspnea. In

the two men of this latter group who died, post mortem revealed extensive emphysema and slight pneumoconiosis. As the men were exposed to such a variety of fumes and dusts during their work, only experimental work can be expected to elucidate the responsible factors.

British Medical Journal, London

2:1115-1172 (Nov. 21) 1953

- Clinical Uses of Currently Available Antibiotics. M. Finland.—p. 1115.
Mortality from Childhood Tuberculosis in Sheffield: Possible Causes of its Decline. J. Lorber.—p. 1122.
*Tuberculous Meningitis Treated with A.C.T.H. and Isoniazid: Comparison with Intrathecal Streptomycin. W. C. M. Bulkeley.—p. 1127.
Treatment of Tuberculous Meningitis. J. G. Kerr.—p. 1130.
Porphyria Cutanea Tarda in Relapse: Case Report. R. J. Calvert and C. Rimington.—p. 1131.
Cutaneous Manifestations of Porphyria. G. Discombe and C. S. Treip.—p. 1134.
Partial Hepatectomy: Observations on Illustrative Case. H. Ogilvie.—p. 1136.
Plasma Protein Concentration of Normal Adults Living in Singapore. G. R. Wadsworth and C. J. Oliveiro.—p. 1138.
Failure of Antibiotics in Case of Staphylococcal Bacteraemia. W. H. Jopling and F. D. Schofield.—p. 1140.
Malaria in Neighbouring Londoners. G. S. Crockett and K. Simpson.—p. 1141.

ACTH and Isoniazid in Tuberculous Meningitis.—In an attempt to prevent the formation of the thick basal exudate always present in fatal cases of tuberculous meningitis and to control the development of tuberculous endarteritis, it was decided to give corticotropin (ACTH) intramuscularly or subcutaneously and isoniazid orally, instead of streptomycin intrathecally. Streptomycin given intramuscularly and *p*-aminosalicylic acid (PAS) given orally to delay development of resistant strains of tubercle bacilli were added to the program after it had been tested. This work was started with children at King George V Hospital in Durban, Union of South Africa, in March, 1952, and has proved so successful that the use of streptomycin given intrathecally, as done formerly at that hospital, has been abandoned. Comparative results of the two methods in two groups of 31 patients each are presented in detail. The mortality rate has been significantly lowered. Administration of the combination of corticotropin and isoniazid is simple, and the elimination of the necessity of daily lumbar puncture is considered a great advance. The cerebrospinal fluid appears to return to normal more quickly in children receiving the new treatment than in the patients treated with streptomycin, i. e., one to four months. Complications of the treatment included moon face, edema, one fatal case of pyogenic meningitis and one case of acute otitis media, and mental disturbances due to isoniazid in one adult. There were no cases of deafness and no clinical or radiological evidence of spread of pulmonary tuberculosis while corticotropin was being administered.

2:1173-1230 (Nov. 28) 1953

- *Clinical Trials of Influenza Vaccine: Progress Report to Medical Research Council by Its Committee on Clinical Trials of Influenza Vaccine.—p. 1173.
Laboratory Evidence of Influenza in England and Wales During the Winter of 1952-3: Report from Public Health Laboratory Service.—p. 1178.
Centenary of Hypodermic Injection. G. A. Moge.—p. 1180.
Attempted Suicide in Old Age. I. R. C. Batchelor and M. B. Napier.—p. 1186.
Work and Age: Statistical Considerations. W. P. D. Logan.—p. 1190.
Extending Employment of Older People. A. T. Welford.—p. 1193.
Costo-Clavicular Compression of Subclavian Vein. R. Wyburn-Mason.—p. 1198.
Pyloric Stenosis and Fibrous Stricture of Stomach Due to Ferrous Sulphate Poisoning. F. G. M. Ross.—p. 1200.
Method of Preventing Insulin Atrophy. J. G. Fox, R. B. McConnell, H. S. Pemberton and D. C. Watson.—p. 1202.

Clinical Trials of Influenza Vaccine.—Small-scale trials in the winter of 1951-1952 of vaccines prepared from certain selected virus strains chosen as being representative of the influenza A viruses recovered during the epidemic of influenza in 1950-1951 allowed assessment by serologic methods of the comparative value as antigens of these vaccines. Large-scale controlled field trials of an influenza A vaccine were carried out in 128 centers of Britain in the winter of 1952-1953. The trial vaccine contained equal proportions of a threefold concentration of

F.M.1 strain originally recovered in 1947 in the United States and of the egg-adapted Liverpool 1951 strain, adsorbed on aluminum phosphate. The control vaccine was a bacterial anti-influenza vaccine of low potency. Subsidiary trials were carried out in villages in the Hebrides and in the Vauxhall motor works at Luton. The vaccines were given by deep subcutaneous injection in the left upper arm between Nov. 26 and Dec. 12, 1952. It was hoped that this timing would permit the development of immunization before the expected outbreak of influenza. Of 12,710 volunteers who acted as participants in the main trial, 6,340 received the trial vaccine and 6,370 the control vaccine. There was an attack rate of clinical influenza in 192 (3%) of the volunteers in the trial vaccine group and in 309 (4.9%) of the volunteers in the control vaccine group. This is equivalent to a 40% reduction in influenza in the former group as compared with the control group. Other acute respiratory infections occurred equally often in vaccinated and control groups. The vaccines used were essentially similar to those employed in previous British and American trials, but differed in their low content of nonspecific protein. Aluminum-phosphate-adsorbed vaccines were used, because a low rate of both local and general reactions could be anticipated with this type of preparation. Reactions occurring in the inoculated persons were if anything slightly less severe among those who had been given the trial vaccine than among those given the control vaccine. With both vaccines women suffered more than men. The fact is stressed that the clinical workers and those who recorded the illnesses during the follow-up had no knowledge of the particular type of vaccine received by a volunteer. No outbreaks of influenza developed in the Hebrides; therefore, no results were forthcoming in this subsidiary trial. The trial at Luton, of which the main object was to gain experience of special methods of ensuring accurate diagnosis, will be reported separately.

Clinica Pediatrica, Bologna

35:535-612 (Aug.) 1953

- One Year's Experience with Systematic Use of Isoniazid in the Brescia Children's Hospital and in the Children's Sanatorium of Valledrara. A. Pagani-Cesa and A. Borta.—p. 536.
*Course of Tuberculous Meningitis Treated with Streptomycin and Isoniazid by Intratracheal, Oral, and Parenteral Routes. G. C. Abba and C. Perego.—p. 551.
Prognosis of Infantile Glomerulonephritis: Clinical-Statistical Study of Patients and Late Results in Children Admitted to the Modena Pediatric Clinic from 1935 to 1952. E. Cheli and F. Amore.—p. 555.
Behavior of in Vitro Culture of Medullar Cells of Leukemic Patients Treated with Cortisone. B. Rondinini.—p. 582.

Streptomycin With and Without Isoniazid in Tuberculous Meningitis.—The results obtained in 27 children with tuberculous meningitis who were treated with streptomycin from January, 1951, to May, 1952, were compared with those obtained in 18 children of the same age with the same disease who were treated with streptomycin and isoniazid from May, 1952, to December, 1952. Streptomycin therapy was instituted in the first group of children within 10 days after the onset of the symptoms, the combined therapy in the second group 10 to 30 days after their onset. Streptomycin was given parenterally in doses of 25 mg. and intrathecally in doses of 2 mg. per kilogram of body weight every day; isoniazid was given orally in doses of 10 mg. and intrathecally in doses of 1.5 mg. per kilogram of body weight every day. Comparison was based on the improvement of the spinal fluid. This occurred in the children who improved between the third and sixth months of therapy with no marked difference between those of the first and second group. The beneficial changes occurred sooner in the children who received the combined therapy. Only 37% of the first group recovered compared with 83% of the second group. There is, however, the possibility that late regressions may still occur in the children of the second group because of the shorter follow-up period. It is not possible to state whether the good results in the children of the second group were due to the combination of the two drugs or to the fact that isoniazid was given intrathecally. Since the drug was tolerated well, it is suggested that this route of administration be employed more widely because there is always a local bacteriostatic action. Combined streptomycin and isoniazid therapy is advocated for tuberculous meningitis.

Deutsche medizinische Wochenschrift, Stuttgart

78: 1525-1586 (Nov. 6) 1953. Partial Index

- Hormones and Carcinoma. K. H. Bauer.—p. 1525.
 Several Types of Hermaphroditism in Man. E. Philipp.—p. 1530.
 Guiding Rules for Aerosol Therapy. H. Martini.—p. 1543.
 Late Results of Suture of Perforating Gastric and Duodenal Ulcers. D. Lorenz.—p. 1549.
 *Contribution to Chemotherapy of Polycythemia Vera. A. Linke and H. G. Lasch.—p. 1552.
 *Clinical Investigation in Iodine-Sulfur Spa Wiessee, Particularly with Radioactive Iodine. H.-R. Presch.—p. 1559.

Chemotherapy of Polycythemia Vera.—Cytostatic agents, namely, nitrogen mustard (N-Lost), ethyl urethane, and triethylene melamine were given to nine men and six women between the ages of 31 and 64 with benign panmyelosis (polycythemia vera) of 2 to 10 years' duration. Some of the 15 patients had already received previous, more or less effective, treatment with venesections and roentgen irradiation. Severe headache and disturbances of blood perfusion were the main complaints. Death resulted from myocardial infarction in a 52-year-old man whose polycythemia had been compensated by triethylene melamine. Bone marrow and blood cell counts were restored to normal by ambulatory treatment without complications in the other 14 patients in whom prolonged remissions of five months to three years were produced. A 64-year-old man, with polycythemia vera of seven years' duration, received a total dose of 932 gm. of ethyl urethane in the course of three years and in addition 200 mg. of triethylene melamine in the course of the last six months; the patient is in good general condition and the blood cell count revealed 100% hemoglobin, 4,800,000 erythrocytes, 8,600 leukocytes, 150,000 thrombocytes per cubic millimeter, and 8 per thousand reticulocytes. A 49-year-old woman received 153 mg. of triethylene melamine in the course of three months, with a resulting remission of 18 months' duration without any further treatment. In a 54-year-old man, a remission of 30 months' duration was produced with 270 gm. of ethyl urethane and 12 mg. of nitrogen mustard. Several patients obtained satisfactory results with ambulatory intermittent, so-called "long-time therapy" with triethylene melamine in small doses up to 10 mg. in the course of four weeks; the dose of the drug was determined by the number of reticulocytes per cubic millimeter of blood. In one patient, absorption of orally administered tablets of triethylene melamine was unsatisfactory; prompt remission resulted after intravenous administration of 50 mg. of triethylene melamine. Lately, a triethylene melamine preparation, in capsules that are soluble in the small intestine, was given a trial; absorption of these capsules proved to be better than that of the tablets, and, therefore, only half of the tablet dose was required. In an addendum, the authors state that three additional patients with polycythemia vera were effectively treated with triethylene melamine administered intravenously.

Clinical Examinations of Patients Undergoing Balneological Sulfur-Iodine Treatment.—Radioiodine uptake tests, measurements of blood pressure and of viscosity of the blood, blood cell counts, measurements of basal metabolic rate, and electrodermatograms were made in 62 patients undergoing balneological sulfur-iodine treatment in a Bavarian spa and in 5 control persons. All these examinations were made on a fasting stomach before balneological treatment was started and after a balneological course of three to four weeks. This balneological course consisted of 10 to 15 baths or drinking a half a glass of sulfur-iodine water daily and inhalation of iodine-containing brine. The radioiodine uptake tests were made with a Geiger-Müller counter after oral administration of 75 mcg. of I^{131} . Results demonstrated that the quantitative behavior in the absorption of iodine differs considerably with the various methods of application. Inhibitory effect and serum iodine level seem to be closely related. A daily average absorption of at least 4 mg. of iodine can be counted on with treatment by drinking iodine-containing water, and daily absorption of 300 mcg. of iodine could be demonstrated in those treated by baths. The absorption of iodine on inhalation of iodine-containing brine proved to be very slight with the aerosol apparatus in use. These quantitative differences deserve consideration concerning the therapeutic use of iodine in patients

with arteriosclerosis and goiter. Results of blood cell counts, measurements of blood pressure and basal metabolic rate, and electrodermatograms suggested a tendency of abnormal values to be restored to normal; these changes may be ascribed to an unspecific effect of the balneological treatment. Patients who complained of general restlessness and tension after the termination of the balneological course presented in the electrodermatogram high values that corresponded to a tonus condition due to stimulation received through the sympathetic nervous system. This suggests prolonged stimulation by the balneological course, and after-treatment is recommended for these patients. The viscosity of the blood seemed to show a tendency to a drop of values that had been high at the start of the balneological treatment.

Gazzetta Medica Italiana, Milan

112:229-256 (Sept.) 1953. Partial Index

- Hydrocortisone* or Compound F: Adrenal Hormone with Antirheumatic Action: First Applications and Results. M. Fiore.—p. 229.
 Treatment of Insufficiency of Gastroenteric Secretions. E. Guidetti.—p. 231.
 *Resumption of Streptomycin Therapy After Isoniazid Therapy in Patients with Previous Streptomycin Resistance. S. Miglioli and A. Corona.—p. 248.

Streptomycin in Streptomycin-Resistant Patients After Isoniazid Therapy.—Results of in vitro studies at the Istituto Forlanini in Rome had indicated that streptomycin-resistant strains of tubercle bacilli treated with isoniazid lost a great part of their resistance to the antibiotic. The authors tested the validity of these results in 20 patients hospitalized at the Chieti sanatorium with advanced pulmonary tuberculosis and in very poor general condition. Streptomycin had been given to all until it had to be discontinued because resistance to it developed. Isoniazid therapy was then instituted and continued for about two months. After this, streptomycin was given again in doses of 1 gm. daily to 10 patients. The second group of 10 patients received 1 gm. of streptomycin with 4 mg. of isoniazid per kilogram of body weight. The drug, which was administered for one month, was well tolerated by all the patients, except one in whom it had to be discontinued. There was no significant difference in the findings of the two groups. The roentgenograms did not change, and, despite an improved erythrocyte sedimentation rate in 13 patients, the pulmonary condition remained almost unchanged. The temperature was not influenced, and, although the sputum was diminished in some cases, its positivity for the tubercle bacillus was not modified. These results confirmed indirectly the findings of the in vitro tests in that streptomycin resistance in the patients had been influenced by the isoniazid therapy so that almost all of them tolerated well the administration of streptomycin. However, even though the antibiotic was well tolerated, the results of this second course of therapy were so poor that they did not justify the resumption of streptomycin therapy in streptomycin-resistant patients after they have been treated with isoniazid.

Irish Journal of Medical Science, Dublin

6:421-460 (Nov.) 1953

- Isoniazid in Pulmonary Tuberculosis: Report on Trial Conducted Under Auspices of Medical Research Council of Ireland.—p. 421.
 *Isonicotinic Acid Hydrazide and Para-Aminosalicylic Acid in Treatment of Pulmonary Tuberculosis. C. S. Breathnach.—p. 433.
 Reassignment of Tasks in Paediatrics. C. McNeil.—p. 445.
 Persistent Vitelline (Omphalo-Mesenteric) Artery Causing Strangulation of Ileum and Volvulus. M. V. Sheehan.—p. 452.

Isoniazid (Isonicotinic Acid Hydrazide) and *p*-Aminosalicylic Acid in Treatment of Pulmonary Tuberculosis.—Breathnach calls attention to the property of either *p*-aminosalicylic acid or streptomycin to prevent the fall in sensitivity of *Mycobacterium tuberculosis* to isoniazid. He also shows that Middlebrook's recommendation of never using an antituberculous compound alone is now universally recognized. He feels that the combined use of isoniazid and *p*-aminosalicylic acid is justified in the following emergencies: (1) in patients whose organisms are streptomycin-resistant; (2) in patients who have received a course of streptomycin (30-50 gm.) with another drug, but who still require some form of therapy other than, or

in conjunction with, a temporary collapse procedure to assist bed rest; and (3) in patients exhibiting allergy to streptomycin. However, since patients fulfilling these criteria are few, the author decided to try the combination of isoniazid and *p*-aminosalicylic acid in cases of acute progressive bilateral pulmonary tuberculosis, believed to be of fairly recent origin and in whom cavitation was not a predominant feature, who were unsuitable for collapse therapy, and of the age group 20 to 40. Both preparations were administered orally for three months. Isoniazid was given in an amount of 6 mg. per kilogram of body weight daily in divided doses and *p*-aminosalicylic acid in daily amounts of 600 mg. per kilogram of body weight (in five divided doses). No incompatibility, physical, chemical, or pharmacological, was observed. Bed rest was continued for three months after the cessation of chemotherapy. The results indicated that this regimen has definite therapeutic value. The response to chemotherapy in this trial is evidence of a synergy that safeguards bacillary drug sensitivity. Combined chemotherapy is, therefore, a justifiable alternative when an antibiotic assault on the tubercle bacillus is desirable but contraindicated.

Journal Obst. & Gynaec. Brit. Empire, Manchester

60:605-764 (Oct.) 1953. **Partial Index**

- *Further Analysis of Controlled Trials of Treatment of Haemolytic Disease of the Newborn. P. Armitage and P. L. Mollison.—p. 605.
Observations on Micturition in the Female. H. Roberts.—p. 621.
Volume of Human Amniotic Fluid. R. G. Harrison and P. Malpas.—p. 632.
Placental Concentration of Chorionic Gonadotrophin in Normal and Abnormal Pregnancy. J. A. Loraine and G. D. Mathew.—p. 640.
Heart Disease in Pregnancy: Review of 228 Cases. D. J. MacRae.—p. 650.
Breast-Feeding: Factors Affecting Success: Report of Trial of Woolwich Methods in Group of Primiparae. J. Blaikley, S. Clarke, R. MacKeith and K. M. Ogden.—p. 657.
Failure of Therapy in Management of Infertility. T. Barns, H. Campbell and L. Snaith.—p. 670.
Remote Effects of Caesarean Section. J. N. Chesterman.—p. 684.
Vaginal Recurrences in Carcinoma of Body of Uterus and Their Prevention by Radium Therapy. B. M. W. Dobbie.—p. 702.
Antepartum Femoral Thrombosis. C. M. Flood.—p. 706.
Some Observations on Treatment of Eclampsia with Sodium Thiopentone. M. K. K. Menon.—p. 710.

Treatment of Hemolytic Disease of the Newborn.—The trials described were planned at a London meeting at which 17 centers were represented. There was uncertainty about the merits of different methods of treatment of hemolytic disease of the newborn. It was hoped at first that exchange transfusion could be compared with simple transfusion and premature induction of labor with spontaneous delivery at term, selection of treatment for each case being made by a system of random numbers. However, only a few were willing to follow this plan. Some centers wanted to use exchange and simple transfusions alternately and to pursue a fixed policy with regard to time of delivery; others agreed to use premature induction of labor and spontaneous delivery alternately and then to give either exchange transfusion to all infants or simple transfusion to all infants. Women included in the trials were those whose serum was found to contain Rh antibodies, the examination having been not less than 30 days before the expected day of delivery. The analysis of the results of premature induction of labor versus spontaneous delivery suggested that it is unlikely that premature induction of labor increases the chance of survival and that, on the contrary, such a practice may diminish the survival rate. No attempt was made to select cases in which premature induction of labor might have been specially indicated. Nevertheless, since the severity of the disease varies strikingly in successive infants born to the same mother and since the severity of the disease cannot be reliably predicted before birth, it is difficult to see how cases could be specially selected for premature induction, even if it could be shown to be beneficial in severe cases. Unless some new evidence of the value of premature induction of labor in selected cases is obtained, the safest course is to abandon this treatment. Further evidence was produced to support the previous observation

that in hemolytic disease of the newborn the chance of survival is closely related to the hemoglobin concentration of the cord blood, but the policy of withholding treatment from all infants whose cord hemoglobin concentration exceeds about 15 gm. per 100 ml. is seen to be unsatisfactory. Without treatment, the incidence of kernicterus in such infants is about 7% if they are mature and about 16% if they are immature. Most of these infants would probably develop normally if treated by exchange transfusion. If premature induction of labor is avoided, the number of infants born prematurely will be small, and it is feasible to treat all such infants by exchange transfusion, irrespective of their cord hemoglobin concentration. Previous conclusions about the superiority of exchange transfusion over simple transfusion are reinforced; there were not only more survivors among infants treated by exchange transfusion but the incidence of cerebral damage among the survivors was low.

Lancet, London

2:1053-1108 (Nov. 21) 1953

- Coronary Heart-Disease and Physical Activity of Work. J. N. Morris, J. A. Heady, P. A. B. Raffle and others.—p. 1053.
Recognition of Whooping-Cough. D. Court, H. Jackson and G. Knox.—p. 1057.
Counter-Irritants: Method of Assessing Their Effect. J. G. MacArthur and S. Alstead.—p. 1060.
Control of Vomiting in Cholera and Oral Replacement of Fluid. H. N. Chatterjee.—p. 1063.
*Dupuytren's Contracture: Radiotherapeutic Approach. R. Finney.—p. 1064.
Prolonged Apnoea Following Injection of Succinylcholine. A. Forbat, H. Lehmann and E. Silk.—p. 1067.
Torulosis: Case Mimicking Hodgkin's Disease and Rodent Ulcer and Presumed Case of Pulmonary Torulosis with Acute Dissemination. W. S. C. Symmers.—p. 1068.
Rocking-Bed for Poliomyelitis. E. Schuster and M. Fischer-Williams.—p. 1074.

Radiotherapy in Dupuytren's Contracture.—Dupuytren's contracture, if left untreated, slowly progresses with an increasing flexion deformity of one or more fingers and accompanying increasing functional disability. Of the various treatments that have been recommended, surgery is widely regarded as the method of choice. Treatment by ionizing radiations has received little attention, except in Sweden and Germany, and the rationale of treating a condition in which the main emphasis has been on contracture following fibrosis is not at first apparent. Radiotherapy has been long used in the treatment of keloid and hypertrophic scars, both alone and in conjunction with surgery. Further, the effect of irradiation on the fibroblasts shows that their mitotic cycle can be interrupted. As a result of irradiating the whole palm, it should be possible to interrupt the cycle of events producing further contracture. The results of treating 25 cases of Dupuytren's contracture with radium are reviewed. Gamma radiation alone was used. In the early stages, before contracture has occurred, a planar mold is made and the area to be irradiated is mapped out on the mold. A treating distance of 1 or 1.5 cm. is used. In the stages when contracture has occurred and a planar mold can no longer be applied, a grip cylinder is made of a radius of 1 or 1.5 cm. The total dose of 3,000 r to the skin is given in fractional doses of eight hours a day for eight days. In no case did the patient have difficulty in wearing or in retaining the appliance. Apart from dryness and occasional slight erythema, no skin reaction was observed. Subjective improvement, including softening of the nodules, lessening of paresthesia, and increase in finger movement, were evident within the first four weeks. Objective improvement, gauged by increase in movement, began on an average within 1.7 months and became maximal by 6 months. The condition was never made worse by irradiation, but it remained the same in one-fourth of the patients, whereas three-fourths showed improvement. In the early stages, it may be as successful as radical surgery. In more advanced cases, irradiation may be followed by radical surgery; complete excision of the aponeurosis can be undertaken without fear of recurrence.

Medicina, Buenos Aires13:257-322 (Oct.) 1953. **Partial Index**

- *Mitral Stenosis with Cor Pulmonale. A. C. Taquini.—p. 257.
- *Antibiotics in Heart Diseases. P. Cossio and J. A. Berreta.—p. 280.
- Intrabronchial Polipoid Fibrosarcoma. V. N. Roger, M. M. Brea, M. Polak and O. Fustinoni.—p. 291.

Mitral Stenosis with Cor Pulmonale.—There is a group of patients with mitral stenosis in whom symptoms and signs of cor pulmonale develop unexpectedly. The syndrome may appear in the course of any of the clinical forms of mitral stenosis and at any time during the evolution of the disease, with alternating periods of aggravation and improvement. Onset of the syndrome is marked by aggravation of the disorders of respiration, dyspnea, cough, hemoptysis, cyanosis, and repeated bouts of spasmodic asthmiform bronchitis. There are clinical symptoms and roentgen and electrocardiographic signs of overload of the right ventricle, rapid establishment of right circulatory stasis, and rapidly progressive diminution of physical strength. Functional disorders include great diminution of the respiratory reserve, a reduced minute volume, and increase of the arteriovenous flow, of the resistance of the pulmonary arterioles, of the capillary pressure, of the gradient of arteriocapillary pressure, and of the work of the right ventricle. The treatment consists of mitral valvuloclasia and valvulotomy, which should be made early in the course of the syndrome. The macroscopic anatomic aspects of the syndrome include tight mitral stenosis, marked hypertrophy of the walls of the right ventricle, signs of tricuspid insufficiency, and dilatation of the pulmonary artery and its main branches. The lung shows alternating zones of emphysema and pneumonitis. The microscopic aspects include hyperplasia of the intima of the small arterioles, elastosis of the large arteries, lesions of rheumatic arteritis in various stages, and parenchymal and interstitial ischemic or rheumatic lesions.

Antibiotics in Heart Disease.—The authors report clinical and bacteriological cure of bacterial endocarditis in 38 out of 63 patients who received penicillin alone or in association with streptomycin and in rare cases with some other antibiotics. Penicillin was given intramuscularly in doses of 300,000 units at intervals of three hours for a period of four or five weeks. Streptomycin was given in doses of 0.5 gm. every 12 hours. They also report results in approximately 100 patients with cardioaortic syphilis. It was observed that the Kahn and Wassermann reactions, which were resistant to arsenicals, became permanently negative after daily doses of 500,000 to 1,000,000 units of penicillin for two or four weeks. Negative reactions became positive in one or two weeks from daily doses of 500,000 units of penicillin, and then they again became negative as a result of the treatment. Penicillin failed in advanced cardioaortic syphilis. From a review of the literature the authors believe that the incidence and severity of rheumatic fever has diminished since the introduction of antibiotics. From observations on two large groups of patients, they conclude that recurrences of rheumatic fever and occurrence of suppurative streptococcal infection of the upper respiratory tract complicating rheumatic fever are less frequent in patients who have had antibiotics.

Minerva Medica, Turin

44:919-950 (Oct. 10) 1953

- *Genetic Problem of Tuberculosis. A. Maltarello.—p. 919.
- Emphysematous Variety of Military Pulmonary Tuberculosis Treated with Streptomycin: Considerations on One Clinical Case. E. Rucci.—p. 927.
- *Post-Primary Tuberculosis of Hilus of Lung and Phthisiogenesis. R. Cappellari and C. Donazzan.—p. 932.
- Diet in Pulmonary Tuberculosis. A. Turletti Tola.—p. 934.

Genetic Problem of Tuberculosis.—A review of the literature was made to evaluate the factors that intervene in the causation of tuberculosis. The conclusions reached by the many authors who studied this matter extensively are thus summarized: (1) there is a hereditary predisposition to the disease that is based on the person's constitution; (2) this predisposition is a specific hereditary character; and (3) the genotype factors do

not have great importance for the manifestation of the disease. As for the mode of hereditary transmission, some authors, after studying numerous genealogical trees, formulated the theory of a recessive monomeric hereditary transmission while others that of a probable recessive polymeric heredity of tuberculosis. If this hereditary predisposition to tuberculosis is accepted, those measures that will prevent the transmission of the disease not only from the standpoint of contact but also from that of the diffusion of the genetic factors of tuberculosis should be enforced.

Secondary Tuberculosis of Hilus of Lung.—Secondary tuberculosis of the hilus of the lung (involvement of the entire hilus) becomes manifest as an acute febrile episode. Although easily confused with influenza and other infectious diseases, it can be recognized in that the mild cough, which is very frequent, is accompanied only by insignificant pulmonary physical findings. The most characteristic diagnostic feature is a roentgenogram indicating involvement of the hilus with an exudative process that diffuses to all the complex structures that form the hilus from an adenopathy that is already in an advanced phase of cicatricial regression. Secondary tuberculosis of the hilus of the lung was at first thought to be an entirely new phenomenon related to an abnormal allergic situation produced in the Italian population by the difficulties of the war. But since more and more cases have been and are being identified (probably because of a greater use of roentgenography), the hypothesis was advanced that this condition represents a transitional phase from the primary to the secondary localization of the tuberculous infection. On the basis of recent tomographic studies, it was asserted that the main characteristic of the condition is, in addition to the primary complex, a parenchymal process that is simultaneous to a hilar adenopathy from which it derives. The authors cite three patients in whom there was an unexplained elevated temperature with dry cough, mild sweating, and mild impairment of the general condition. The diagnosis of secondary tuberculosis of the hilus of the lung was made after the roentgenograms had revealed the characteristic picture of involvement of the left hilus. This disease seems to occur rather frequently during the transition to secondary pulmonary tuberculosis.

Minerva Pediatrica, Turin5:717-776 (Sept. 15) 1953. **Partial Index**

- Clinical and Experimental Studies on Pathology and Therapy of Hepatic Syndrome. P. Durand and E. De Toni Jr.—p. 717.
- *Is Medical Therapy of Hypertrophy of Thymus Possible? Some Trials with Corticotropin. T. Porcelli.—p. 756.
- Paroxysmal Tachycardia and Skull Trauma. P. Marussi Scarizza.—p. 768.
- Myocarditis with Arthralgia During Course of Interstitial Virus Pneumonia. G. Rottini.—p. 771.

Corticotropin in Hyperplasia of Thymus.—Corticotropin was given to 21 children, 1 to 17 months of age, with disturbances of the respiratory, circulatory, digestive, and nervous systems attributable to hyperplasia of the thymus. The doses at first small (3.5 mg. daily) were gradually increased until some infants were given as much as 20 mg. daily. Most of them received two five day courses of treatment with a two week treatment-free interval between. The clinical signs disappeared rapidly or gradually in most and never reappeared. The size of the thymus was reduced in many and became normal in seven. However, roentgenograms taken after discontinuation of the treatment revealed that the thymus was again hypertrophic in several children and sometimes to a greater degree than before treatment was instituted. The congenital laryngeal stridor present in a few children was not influenced by the hormone, and this seems to prove the theory of its mechanical origin in a deformation of the trachea that persists for some time. Eosinopenia was present in most of the children after administration of the hormone, and the number of eosinophils rose to above the initial values after the therapy was discontinued. Although corticotropin does reduce the volume of an hypertrophic thymus and makes the clinical signs disappear, the author fears that this hormone may constitute a danger to the adrenals that in these children are already hypoplastic. The stimulus that the hormone exerts on them may alter the functional

activity of the adrenal cortex. Anatomic alterations of the adrenals were observed in one child who died of diphtheria during the treatment. Not only hypoplasia of the organ was present but there was also a decrease of the lipids of the cortical zone with modes of distribution other than those generally seen in hypoplasia of the adrenals. Moreover, it has already been established that corticotropin and cortisone decrease the organism's immunity defenses, facilitate the onset of infections, and render the organism less resistant to them.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:2765-2828 (Oct. 24) 1953. Partial Index

- *Scabies in Domestic Animals Transmissible to Human Beings. W. Stigter.—p. 2771.
- Epileptiform Attacks as Complication of Operations Performed Under General Anesthesia. F. van Nouhuys.—p. 2776.
- *Complications After Vaccination with BCG. J. F. Droogleever.—p. 2780.
- Ovarian Tumors Producing Virilism. L. Remouchamps and P. F. Ghysbrecht.—p. 2783.

Transmission of Animal Scabies to Man.—According to Stigter scabies may occur in many animals, such as horses, cattle, sheep, monkeys, goats, pigs, dogs, cats and foxes, and these forms of scabies may be transmitted to human subjects. He observed a married couple who complained of itching and in whom skin lesions were discovered at sites typical of infestation with *Sarcoptes scabiei*. Three weeks before, this couple had bought a dog that looked extremely neglected, scratched much, and had bald spots. The veterinary had found *Sarcoptes* mites in the dog, but no mites could be found in the patients. The second instance described also concerned a couple who had taken in a stray cat that had slept in their bed against the shoulder of the man. The skin lesions had begun on this shoulder. Both couples quickly recovered following suitable treatment.

Complications Following Vaccination with BCG.—For some time it was widely assumed that vaccination with BCG involved practically no danger. Follow-up studies on newborn infants given BCG by mouth, however, disclosed a relatively high incidence of complications. The present report reviews investigations carried out on 3,636 adolescents one year after vaccination with BCG. In 0.03% a scar of a perforated suppurative lymphadenitis was observed. Enlargement of the regional lymph nodes caused complaints in 0.8%, and in 6.7% the lymph nodes were enlarged without giving rise to complaints. Conjunctivitis possibly caused by BCG was observed in 0.24%. Erythema nodosum occurred in 0.1%, and 0.4% experienced general malaise of several days duration. However, active pulmonary tuberculosis or tuberculous involvement of the hilar or mediastinal lymph nodes were never observed, and chronic otitis media likewise never occurred as a complication of BCG vaccination.

Nordisk Medicin, Stockholm

50:1387-1420 (Oct. 8) 1953. Partial Index

- *Hemolytic Anemias. K. Aas.—p. 1387.
- Case of Marked Adiposity in Hypothyreosis. O. Ljung.—p. 1396.

Hemolytic Anemia.—Aas concludes that the three main groups of hemolytic anemia—congenital hemolytic anemia, immunological hemolytic anemia, and symptomatic splenogenic anemia—are the most important because of their frequency and because of the therapy available. In congenital hemolytic anemia, treatment consists of splenectomy, which practically always gives excellent clinical results. In the immunohemolytic anemias treatment is primarily concentrated about corticotropin (ACTH) and cortisone. In certain cases, however, splenectomy also will be necessary or desirable to reduce a hemolytic mechanism and to reduce antibody production. Further experiences will probably further clarify lines of guidance for treatment of this group of hemolytic anemias. In the third group, with splenic destruction of the red blood cells, the treatment is splenectomy in suitable cases. It will usually not be possible to cure the basic disease, but a symptomatic improvement of no small value can be attained.

Presse Médicale, Paris

61:1439-1458 (Nov. 7) 1953

- *New Therapeutic Results of Intra-Arterial Injections of Oxygen in Arteritis of the Lower Limbs. A. Lemaire, J. Loeper and E. Housset.—p. 1439.
- Intracardiac Pressure-Curves in Pericardial Symphysis and Pericarditis. A. Tourniaire, J. Blum, F. Deyrieux and M. Tartufler.—p. 1440.
- Renal Output in Cardiac and Hypertensive Patients. P. Meriel, F. Galinier, R. Sardou and M. Desandre.—p. 1442.

Intra-Arterial Oxygen.—The authors treated 58 patients with arteritis of the legs by means of almost 300 intra-arterial injections of oxygen. There were no mishaps. The simple procedure was carried out with a 50 cc. syringe; the quantity of oxygen injected varied between 50 and 150 cc. Injection was performed only at the level of the single femoral artery with the patient in a horizontal position. In addition to their regular battery of clinical tests and careful interrogation of each patient, the authors used, when necessary, three auxiliary tests enabling them to improve their clinical impression of a given patient. These were measurement of cutaneous temperature and of oxygen in the blood and plethysmography with a photoelectric cell. There were eight failures in this series; seven patients were unimproved, and there was one technical failure because of blood hypercoagulability associated with diabetic arteritis. A definite but transient improvement was observed in 38 patients (some are classified this way because of lack of adequate follow-up, but the average duration of improvement was three to four months). The remaining 12 showed lasting improvement that enabled the patients to lead practically normal lives. The authors find that, in arteritis, the indications for oxygen injection are opposite to those for arterial grafting. While the latter consist mainly of the obliterative forms of the disease, the former include those forms in which the spasmodic element predominates. The existence of dystrophy is not a contraindication to this method that allows of a limitation of scabs and favors scarring.

61:1459-1478 (Nov. 11) 1953

- *Action of Chlorhydrate of 1-Hydrazinophthalazine on 60 Hypertensives. R. Herbeuval, G. Cuny, R. Guidat and J. Pinck.—p. 1459.
- Malignant Reticulosis of Clinical Type of Periodic Fever. R. Crosnier, A. Darbon, F. Dulac, and others.—p. 1460.
- Action of Chlorpromazine (Largactil) on Tissue Respiration (Oxygen Consumption). L. Peruzzo and R.-B. Forni.—p. 1463.

Action of Chlorhydrate of Hydralazine.—Chlorhydrate of hydralazine (Apresoline) was used in an experimental treatment of 60 hypertensive patients, with the particular purpose of studying its effects on retinal arterial hypertension. The drug was administered orally in four 50 mg. tablets a day for periods of from 25 days to 10 months. On the whole, it was well tolerated. The following results were obtained. Of seven patients with Keith-Wagener stage 1 hypertension, the retinal pressure of one who had arterial and retinal hypertension alone went from 120/60 to 80/20 mm. Hg; of the six with associated peripheral hypertension, five improved and one did not. There were 29 patients with Keith-Wagener stage 2 hypertension; good results were obtained in 22; and 4 had improvement in retinal pressure, 1 in peripheral pressure, and 2 remained unimproved in any way. Patients in stage 3 were divided into those with and those without retinal thrombosis. There were four in the first group, three of whom had improvement in both retinal and peripheral pressure and one of whom had improvement in peripheral pressure only. Of the 17 without thrombosis, there were 15 who had good results and 2 with improvement in peripheral pressure. None of these 57 patients had retinopathy; in the 3 who did, the administration of chlorhydrate of hydralazine must be counted a failure, although faint results on retinal pressure were obtained in 2. The authors feel that, because of its proved beneficial effects on retinal arterial hypertension, on both systolic and diastolic peripheral hypertension, on the subjective manifestations of hypertension, on renal blood flow, and, in some cases, on some cardiovascular signs, chlorhydrate of hydralazine is one of the most valuable drugs known today in essential hypertension and should be given to any hypertensive patient whose renal function is not impaired.

Proceedings of Royal Society of Medicine, London

46:901-990 (Nov.) 1953. Partial Index

- The Last Decade and the Next: An Appraisal of Radiology. C. A. P. Wood.—p. 909.
- Some Electroencephalographic Changes Associated with Induced Vascular Hypotension. P. R. Bromage.—p. 919.
- Depression of Respiration by Opiates and Its Antagonism by Nalorphine. R. I. Bodman.—p. 923.
- Jan Evangelista Purkyně: Czech Scientist and Patriot (1787-1869). H. J. John.—p. 933.
- Study of Spinal Osteoporosis. D. Wilson.—p. 977.
- Rheumatoid Arthritis from Point of View of General Physician. W. A. Bourne.—p. 987.

Schweizerische medizinische Wochenschrift, Basel

83:1079-1102 (Nov. 7) 1953. Partial Index

- *Combination Therapy with Cortisone and Phenylbutazone in Chronic Polyarthritis. O. Gsell and H. K. von Rechenberg.—p. 1079.
- Disease of Body Schema, the Disease of Chronic Patients. E. Wilms.—p. 1082.
- Flaxedil, a Synthetic Curare Preparation for Intubation Anesthesia. H. Neuschwander and A. Senn.—p. 1085.
- Effect of Electrocohortin (Compound X) on Water and Electrolytes Excretion Compared with That of Desoxycorticosterone. P. Desaulles, J. Tripod and W. Schuler.—p. 1088.

Cortisone Combined with Phenylbutazone in Polyarthritis.—Combined antirheumatic therapy with cortisone and phenylbutazone (Butazolodin) in three stages was practiced in 20 patients between the ages of 28 and 71 years with primary chronic polyarthritis of two and more years' duration and progression of the disease to stage 3 and 4 according to Steinbrocker's classification (*J. A. M. A.* 140:659 [June 25] 1949). After a preparatory period of two to four weeks during which a first course with phenylbutazone was given parenterally for the relief of acute disturbances, cortisone was instituted for 12 to 20 days with an average total dose of 1,500 mg.; the drug was given in doses of 100 mg. daily for one week, and administration was continued with 75 mg. daily. In a third stage of treatment immediately following that of cortisone therapy, phenylbutazone was given for several months (maximum 11 months); 2.5 to 5 cc. of phenylbutazone was given intramuscularly during the first week and then one ampul every second day or one tablet three to four times daily by mouth. After the second week, the dose was reduced tentatively to one tablet three times daily and finally to one tablet two times daily or one ampul twice a week. The authors strongly caution against simultaneous administration of cortisone and phenylbutazone for prolonged periods that may expose the organism to a phase of deficient production by the adrenal cortex associated with increased susceptibility to infection and toxins that favors the occurrence of toxic allergic side-effects of the pyrazols. Results of the three stage combination treatment with cortisone and phenylbutazone revealed less complaints, subsiding inflammatory manifestations, and definite loosening of joints in all patients during the preparatory period. Further improvement occurred in 17 of the 20 patients during the second, the cortisone stage. At the beginning of the third stage of the treatment, most of the patients first showed certain signs of exacerbation in that the optimum improvement obtained with cortisone could not be maintained; recurrences, however, could be prevented in 55% of the patients and a "marked effect" according to Hench's classification of response was obtained. In 40% of the patients a permanent "moderate effect" was obtained in that the condition of the patients was not entirely satisfactory, but was definitely improved as compared to that before the institution of the treatment. The results were almost exactly identical with those obtained by Ward and associates with cortisone in relatively small doses for prolonged periods (*J. A. M. A.* 152:119 [May 9] 1953). The risk of granulocytopenia requires rigid control of the blood picture. The authors recommend intermittent phenylbutazone administration in that the drug should be discontinued if possible after two to three months and that the entire course of treatment including the initial cortisone administration may be repeated periodically similar to hydrotherapy thus preventing the undesirable side-effects of prolonged cortisone therapy.

Ugeskrift for Laeger, Copenhagen

115:1497-1532 (Oct. 8) 1953

- *Primary Carcinoma of Fallopian Tube. H. Glastrup.—p. 1497.
- *Cancer of Larynx with Special Regard to Results of Surgical Treatment. J. Falbe-Hansen.—p. 1504.
- Changes in Metabolism Following Operation. H. Faber.—p. 1507.

Primary Carcinoma of Fallopian Tube.—Glastrup traced 20 cases of primary carcinoma of the fallopian tube that occurred in Denmark during the past 10 years. He gives detailed tabulation of 16 of the cases, 11 of which were complicated by other affections. Thirteen patients were between 35 and 60 years of age, and three were between 60 and 71. In spite of the short time of observation, 11 of the 16 are dead, mainly due to cessation of intestinal function or uremia, or have recurrence; of the remaining 5 only 2 have been observed for over five years. Primary carcinoma of the fallopian tube is as insidious as many other forms of cancer and is highly malignant. The symptoms are few and vague. The classic triad of discharge, pain, and bleeding seldom occurs. The objective findings are uncertain, and the disease is often misinterpreted at operation. The characteristic signs at operation are pronounced dilatation of the tube without fissure or rupture and smooth, shiny, and mirror-like serous surface without adhesions or with few adhesions. The tumor spreads along the mucous membrane, without invading the walls, and into the peritoneal cavity or along lymphatic channels. A gynecologic examination in peritoneal disorders is important, even though the symptoms do not directly suggest a genital disorder. Treatment is primarily surgical and consists in removal of uterus, both tubes, both ovaries, and possible lymph nodes. When the carcinoma is established by microscopic examination, it will be evident that the place of excision was infiltrated by the tumor. Reoperation if decided on must be carried out without delay, as the tumor can spread with incredible speed.

Cancer of Larynx with Special Regard to Results of Surgical Treatment.—In 53 cases of cancer of the larynx in 50 men and 3 women, aged from 35 to 85, with diagnosis established by histological examination, Falbe-Hansen performed 5 hemilaryngectomies and 48 total laryngectomies. He emphasizes the importance of general and psychic preoperative treatment. Pulmonary tuberculosis and marked arteriosclerosis are contraindications for operative treatment. Old age is not a contraindication, if the patient is well. Early diagnosis of cancer of the larynx is important both as to life and the functional result of treatment. Small tumors can often be cured by roentgen treatment or removed by hemilaryngectomy. Total laryngectomy and hemilaryngectomy, even when highly developed radiological treatment is available, are indispensable in the treatment of certain forms of cancer of the larynx. Carried out in one session and with prophylactic application of antibiotics, the interventions have a low operative mortality and a good percentage of recoveries. Total laryngectomy is a mutilating but not disabling procedure, as practically all the patients can learn to speak intelligibly with esophagus voice and can get along in widely different occupations. In case of recurrence or rest tumor in patients previously given roentgen treatment that was aimed at minimal harmful effect on the healthy tissue, operation can be done without greater percentage of complications than in patients not given roentgen treatment. In a small country with annually relatively few cases of cancer of the larynx centralization of radiological and surgical treatment is desirable for the best results. Although antibiotic treatment has reduced to a minimum the mortality in operations on the larynx and the operations do not often present difficulties, cases regularly occur in which the operation is especially difficult because of complicating disease or earlier roentgen treatment and in which the results depend to a high degree on the surgeon's experience. The decision of whether a less mutilating operation is justifiable or a larger intervention should be preferred can be made only by an experienced surgeon.

BOOK REVIEWS

The Effects of Noise on Human Behavior. By John F. Corso. WADC Technical Report 5381. Aero Medical Laboratory contract no. AF 33 (616)785, RDO no. 695-61. Paper. Pp. 65, with illustrations. Wright Air Development Center, Air Research and Development Command, United States Air Force, Wright-Patterson Air Force Base, Ohio, 1953.

This report deals with the effects of high intensity noise on human behavior. This is a timely and important topic because of the increasing general concern about noise as an undesirable feature of modern civilization. Extreme claims about "reduction in efficiency" of workers and the production of "nervous breakdowns," etc., by noise are familiar to all. Actual experiments on the effects of noise on human behavior have been few and the results have been quite inconclusive.

The present studies undertook, first, to determine the effects of high intensity noise on human performance as measured by standard mental tests and learning tasks and, second, to investigate certain physiological and psychological characteristics with respect to individual differences in noise susceptibility. The experiments seem technically well controlled and the battery of tests well selected for the purposes as stated. The results are quite clean cut in that they show no marked effect from the noise on short-term mental performance as measured by standard intelligence tests. Small increases in the quantity and decreases in the quality of responses on certain aptitude tests were produced by random bursts of intense noise, but the effects were so small as to be of questionable significance. No effects were demonstrated on tests of learning or recall. There were great individual differences in intellectual performance under the noise, but no personality characteristic was isolated that would predict which persons would show the variations. There was some suggestion of a relation between intellectual performance under noise and certain physiological indicators of activity of the autonomic nervous system, but even here the results cannot be considered definitive.

The noise employed had a fairly flat spectrum of 100 to 3,000 cps and its intensity varied from 100 to 116 db. relative to 0.0002 dyne/cm². This qualifies as a high intensity noise by everyday standards, as it would be quite impossible to communicate by voice in such a noise at 116 db. The noises in question begin to overlap with those industrial noises that seem to cause permanent hearing losses when experienced over years of daily exposure. On the whole the results reported in this summary are negative but they nevertheless have great practical significance.

Community Health Action: A Study of Community Contrast. By Paul A. Miller. With assistance of J. Allan Beegle, et al. Cloth. \$3. Pp. 192, with 10 illustrations. Michigan State College Press, East Lansing, Michigan, 1953.

"Together, the research and this report constitute a detailed review of community action in small American communities. Throughout the study, the accent has been on the community and its resources for citizen-action, rather than on health itself, either environmentally or institutionally. As a comparative study, it threw into relief certain contrasts among the areas studied. Not only were the individual patterns of community action deemed important, but, likewise, the contrasts in patterns."

The authors recognize that community action for the construction and operation of a hospital differs from community action for the development of a local health department or any of several other facilities that it is possible to develop by this means. They also recognize that, regardless of the project, there are certain similarities of pattern in the development of

community organization toward a recognized end and of the "power patterns" in the community that determine the leadership channels for accomplishing the desirable end. After a general discussion of the procedure in this particular research and the general problems associated with "beds, bricks, and people," a careful examination is made of the differences in six regions of the United States. In each instance a hypothetical community, characterizing the communities examined within that region, is described in great detail. The differences in community action and the different organizational patterns typical of the region are described as though they had actually taken place.

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The Life and Work of Sigmund Freud. Volume I: The Formative Years and the Great Discoveries, 1856-1900. By Ernest Jones, M.D. Cloth. \$6.75. Pp. 428, with 12 illustrations. Basic Books, Inc., 59 Fourth Avenue, New York 3, 1953.

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The Freud family cooperated with Jones by turning over to him all of the possible information and literary material. This material consisted of about 2,500 letters, including 1,500 written by Freud to his future wife during their four years of engagement, a vast number of miscellaneous letters, official papers, and the published and unpublished letters that Freud wrote to his intimate friend, Wilhelm Fliess. Out of this wealth of material the author has given us an unforgettable portrait of the great psychiatrist. The book should find a wide audience.

Radioactive Isotopes: An Introduction to Their Preparation, Measurement and Use. By W. J. Whitehouse and J. L. Putman. Cloth. \$10. Pp. 424, with 155 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1953.

Intended primarily for the use of scientific workers, this book offers an introductory summary of the theory of nuclear physics followed by chapters on the production of artificial radioactive isotopes, the various modes of nuclear disintegration, the properties of various ionizing radiations, the modus operandi of cyclotrons and uranium piles, the detection and measurement of radiations, the gross physical effects of radiations, some applications (including uses in archeology) of radioactive isotopes, and the manipulation of radioactive material. Most of the material of interest to physicians is contained in the two last chapters, which include a brief section on recent developments in radiotherapy and an extended, useful discussion of safety problems in radiological laboratories. Written with commendable clarity and authority and provided with good tables, subject index, and author index, the book should be useful to anyone specializing in radiology.

Middle East and Far East. By Allan S. Walker, M.D., Ch.M., F.R.A.C.P. Australia in War of 1939-1945, Series five: Medical. Volume II. Cloth. 35s. Pp. 701, with illustrations. Australian War Memorial, Canberra; obtainable at Anglobooks, 475 Fifth Ave., New York 17, 1953.

This is the second volume in the medical series of the Australian history of World War II. It is, assumedly, a part of the official Australian history of the war, although no direct statement to that effect has been noted either in the book or on the jacket. There is no list of the members of various committees and editorial boards who assisted in this task of writing; however, the editor, Dr. Allen S. Walker, who relinquished his private practice and professional appointments to undertake the editorship, gives credit to a number of officers and others who assisted him. He submitted the chapters to critics fitted by personal experience and knowledge to check the accuracy and fairness of the story. In this laborious task his medical colleagues gave him valuable material and encouragement. Among those to whom he was particularly indebted was Dr. Mervyn Archdall, editor of the *Medical Journal of Australia*. Dr. Walker served with the Australian forces and was also a consulting physician at the Australian medical headquarters and in the field. Here he reviews the sometimes discouraging service in the North African campaign, especially in the retreat from Cyrenaica and at the siege of Tobruk, and in the long period of captivity following the fall of Singapore. The Australian troops bore these hardships with great courage. The editor stresses the purely military activities as a background to the medical activities to a greater extent than is usual in recent medical histories of wars. This fact is more noticeable in the first part of the book, which reviews the service of Australian troops engaged in Africa, Greece, Crete, Syria, and Italy. The last part of the book reviews the period after Japan entered the war, when the Australian forces were diverted toward their homeland and toward Java, Sumatra, and Malaya, a movement which involved the transfer of some 60,000 troops and their equipment. During this transfer, Fifth Column activities were believed to be responsible for the loss of 120 tons of quinine and for the destruction of wheels and headlights on ambulances.

The AIF suffered 2,840 casualties in Java, of whom 751 were killed in action or died while prisoners. It seems strange now to read that, in this phase, quinine was used as a prophylactic against malaria, but the more modern drugs for this purpose were not then available. While the troops were retreating near Rabaul, the day after the troops arrived at Wide Bay, a large party of Japanese soldiers arrived in landing craft and captured over 130 Australians, most of whom they massacred. The victims included most of the field ambulance detachment; despite the brassards on their arms. From Moresby the survivors were taken to the mainland, where it was estimated that out of 252 men, 50 had died of malignant malaria.

During the Japanese attack on Rabaul, a medical captain sick in a hospital chafed at the inadequacy of the plans to evacuate his casualties. He discharged himself from the hospital (in his pajamas), made his way to the fortress, and took charge of the arrangements. Since this captain was not in uniform and wore no brassard, he was taken away as a prisoner to a camp and was never heard of again. He was reported as dead by the Japanese. The editor reviews the campaign in Malaya where the prevention of malaria was given serious consideration. Atabrine was now available as a suppressive drug. In a withdrawal of Australian troops in the Malayan campaign, attempts to rescue the force through a crossroad to Yong Peng failed. Only those of the wounded who could walk made their way back by jungle paths. Trucks containing severely wounded men were fired on by the Japanese. Most of the wounded, the editor says, were massacred by their captors. The final capture of the great British base on Singapore Island is a depressing story. In the final phase of this campaign 500 patients were housed on the lower floors of a 12-story building in which the higher floors were occupied by the headquarters of the Third Indian Corps. The Red Cross flag could not therefore be flown from the building and despite urgent requests from an Australian colonel, the Indian group

refused to move. Consequently the building was shelled and bombed, but the lower floors escaped damage. Protection of medical units by the enemy could usually be expected, but when the Japanese entered the British hospital at Alexandra on Singapore Island, they declared that the area had been used for artillery purposes and they massacred numbers of patients and members of the staff. With the fall of Singapore, about 15,000 Australian troops became prisoners of war, including about 9,000 sick and wounded who were removed to the Shanghai area. The editor's descriptions of the hardships, unsanitary conditions, and inadequate diet, and the heroic efforts to correct them is one of the highlights of this volume, which undoubtedly will be of great interest to Australia and other parts of the British commonwealth. One of the outstanding impressions given is that only younger men, those under 35 years of age, are physically capable of undergoing such hardships as these troops had to endure in the African desert and in the jungles of the Pacific tropical islands.

Antibiotics. By F. A. Robinson, M.Sc. Tech., LL.B., F.R.I.C. Cloth. \$3. Pp. 132. Pitman Publishing Corporation, 2-6 West 45th Street, New York 36; Sir Isaac Pitman & Sons, Ltd., Pitman House, 39-41 Parker Street, Kingsway, London, WC2; 381-383 Church Street, Toronto, 1953.

This British publication is a new monograph dealing with all the antibiotics in common use. It is divided into chapters according to individual or closely related antibiotics, or according to their derivation from molds or bacteria. Each chapter deals with such aspects as methods of production, assay, antimicrobial spectrum, pharmacology, absorption and excretion, clinical use, preparations, chemical structure, and synthesis. The space devoted to manufacturing procedures, chemistry, and bacteriology greatly exceeds the space given to pharmacological and clinical information. Because of the rapidly changing developments in the antibiotic field, the book is out-of-date from the standpoint of current therapeutic knowledge in the United States. Historically, much of the basic information will be of interest to workers in the antibiotic field. Its appeal to American readers will be diminished by the use of British terminology, especially in the nomenclature for micro-organisms. An index is provided. The printing is clear; the binding is only fair. This book cannot be recommended for practicing physicians but will be useful to students as a reference.

Symptoms of Visceral Disease: A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director, Pottenger Sanatorium and Clinic for Diseases of Chest, Monrovia, California. Seventh edition. Cloth. \$7.50. Pp. 446, with 97 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1953.

This book was first published in 1919, and the sixth edition was published in 1944. The author has been a student of medicine and a careful observer of the symptoms and signs presented by his patients for over 50 years. He hopes that this new edition "will continue to be helpful to those who are especially interested in the visceral reactions of man to stimuli, no matter from what source they come." In dedicating this book he states, "There is a patient who has the disease, as well as the disease which has the patient." Part 1 takes up the vegetative nervous system, and it is first considered embryologically and anatomically and then discussed from the physiological and the pharmacological viewpoint. This is done in a manner that should be interesting and helpful to a clinician. Part 2 discusses the relationship between the vegetative nervous system and the symptoms of visceral disease. Symptoms due to toxemia, reflex causes, and the disease process per se are separated. Part 3 considers the innervations of important viscera with a clinical study of the more important viscerogenic reflexes. This portion of the book focuses the vast amount of information discussed in earlier chapters on the specific part of the body under consideration. The heart, stomach, pancreas, eyes, larynx, and other organs are taken up in separate chapters. These should be valuable to anyone trying to understand the symptoms and signs of disease. The book is written interestingly and is well illustrated. There are references after each chapter, but few of these are recent.

BOOK REVIEWS

The Effects of Noise on Human Behavior. By John F. Corso. WADC technical report 53-81. Aero Medical Laboratory contract no. AF 33 (038)-786, RDO no. 695-63. Paper. Pp. 65, with illustrations. Wright Air Development Center, Air Research and Development Command, United States Air Force, Wright-Patterson Air Force Base, Ohio, 1953.

This report deals with the effects of high intensity noise on human behavior. This is a timely and important topic because of the increasing general concern about noise as an undesirable feature of modern civilization. Extreme claims about "reduction in efficiency" of workers and the production of "nervous breakdowns," etc., by noise are familiar to all. Actual experiments on the effects of noise on human behavior have been few and the results have been quite inconclusive.

The present studies undertook, first, to determine the effects of high intensity noise on human performance as measured by standard mental tests and learning tasks and, second, to investigate certain physiological and psychological characteristics with respect to individual differences in noise susceptibility. The experiments seem technically well controlled and the battery of tests well selected for the purposes as stated. The results are quite clean cut in that they show no marked effect from the noise on short-term mental performance as measured by standard intelligence tests. Small increases in the quantity and decreases in the quality of responses on certain aptitude tests were produced by random bursts of intense noise, but the effects were so small as to be of questionable significance. No effects were demonstrated on tests of learning or recall. There were great individual differences in intellectual performance under the noise, but no personality characteristic was isolated that would predict which persons would show the variations. There was some suggestion of a relation between intellectual performance under noise and certain physiological indicators of activity of the autonomic nervous system, but even here the results cannot be considered definitive.

The noise employed had a fairly flat spectrum of 100 to 3,000 cps and its intensity varied from 100 to 116 db. relative to 0.0002 dyne/cm². This qualifies as a high intensity noise by everyday standards, as it would be quite impossible to communicate by voice in such a noise at 116 db. The noises in question begin to overlap with those industrial noises that seem to cause permanent hearing losses when experienced over years of daily exposure. On the whole the results reported in this summary are negative but they nevertheless have great practical significance.

Community Health Action: A Study of Community Contrast. By Paul A. Miller. With assistance of J. Allan Beegle, et al. Cloth. \$3. Pp. 192, with 10 illustrations. Michigan State College Press, East Lansing, Michigan, 1953.

"Together, the research and this report constitute a detailed review of community action in small American communities. Throughout the study, the accent has been on the community and its resources for citizen-action, rather than on health itself, either environmentally or institutionally. As a comparative study, it threw into relief certain contrasts among the areas studied. Not only were the individual patterns of community action deemed important, but, likewise, the contrasts in patterns."

The authors recognize that community action for the construction and operation of a hospital differs from community action for the development of a local health department or any of several other facilities that it is possible to develop by this means. They also recognize that, regardless of the project, there are certain similarities of pattern in the development of

community organization toward a recognized end and of the "power patterns" in the community that determine the leadership channels for accomplishing the desirable end. After a general discussion of the procedure in this particular research and the general problems associated with "beds, bricks, and people," a careful examination is made of the differences in six regions of the United States. In each instance a hypothetical community, characterizing the communities examined within that region, is described in great detail. The differences in community action and the different organizational patterns typical of the region are described as though they had actually taken place.

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Human Embryology. By Bradley M. Patten, Professor of Anatomy in University of Michigan Medical School, Ann Arbor. Second edition. Cloth. \$12. Pp. 798, with 455 illustrations. Blakiston Company (division of Doubleday & Company, Inc.), 575 Madison Ave., New York 22, 1953.

The aim of this book was to develop those aspects of embryology that form an important background for the other medical sciences, especially obstetrics and gynecology. In this edition the author rewrote the chapter on cleavage, germ layers, and establishment of the embryonic body, basing his new data on the early human embryos described by Hertig and Rock, rather than on inference from conditions in other mammals. Likewise, the data about the early stages of human implantation presented by the same investigators led to extensive changes in the chapter on the fetal membranes and the placenta. Because of the progress in the surgical treatment of congenital cardiovascular defects, a number of additional illustrations of congenital defects was added. This book contains practically all the useful knowledge we possess about human embryology. The material is presented in an interesting, easily readable style. The illustrations are numerous, clear, and highly instructive. Many were taken from other sources but are valuable additions. At the end of the book is an extensive bibliography. This book will long remain a classic in its field.

Eden & Holland's Manual of Obstetrics. By Alan Brews, M.D., M.S., M.R.C.P., Obstetric and Gynecological Surgeon, London Hospital, London. Tenth edition. Cloth. 52s. 6d. Pp. 812, with 435 illustrations. J. & A. Churchill, Ltd., 104 Gloucester Place, Portman Sq., London, W.1, 1953.

This standard British text is highly recommended. It is a manual rather than a compendium of knowledge. Although it is impossible to cover all of the rapidly accumulating literature, Brews has made his selections admirably. At first glance, the text seems superficial on many topics, but more careful analyses will not sustain that idea. The guide to further reading at the end of each chapter captures one's attention and accomplishes its purpose far better than a stereotyped list of references. The guide lists British references predominantly. The author frequently comments on the high quality of pertinent references, further stimulating the student's interest in source reading. The undergraduate needs no other text to qualify for examinations, and the practitioner and specialist will find a well-selected bibliography readily at hand.

Courage Is the Key. Edited by Alexander Klein. Cloth. \$3.75. Pp. 287. Twayne Publishers, 34 East 23rd Street, New York 10, 1953.

Not long ago, while browsing through the essays of William James, the philosopher, the editor of this anthology was moved to action by the statement, "We draw new life from the heroic example." This sentence inspired him to seek out representative heroic examples—accounts of the physical and spiritual adventures of both famous and little-known men and women who exemplified the undefeated, triumphant human spirit in the face of severe physical, psychological, economic, and social blows. These persons, subjected to extraordinary trials and suffering, not only overcame the handicaps imposed on them but in the process became far better human beings than they had been before catastrophe struck. The stories, written in fast-paced journalistic tempo, deal with such handicaps as arthritis, heart disease, poliomyelitis, cerebral palsy, blindness, deafness, epilepsy, amputation, and paralysis. The reader will find this book a testament to the undefeated human spirit.

Essentials of Abnormal Child Psychology: A Survey Representing Twenty-Five Years' Work in the Field of Child Psychology. By Dr. Ernest Harms. Cloth. \$5. Pp. 265. Julian Press, Inc., 8 W. 40th St., New York 18, 1953.

The author of this survey of the nature and origins of mental abnormalities has had long training and experience both here and abroad and has worked with Freud, Kraepelin, Jung, and Adler. He interprets the diverse opinions concerning the cause of behavioral abnormalities in children. The book is strong in its careful consideration of the many psychoanalytic writers in the field; its major weakness lies in the author's inevitable acceptance of the analytic interpretation over any other. It calls attention to many areas not widely discussed in the litera-

ture, such as the use of child art in diagnosis and the use of "autogenic therapy" in treating children's problems. Although not complete in its coverage of the behavior disorders in childhood schizophrenia and childhood hysteria, depressive and manic disease in childhood, and the abnormal and normal child, infrequently discussed subjects such as ego inflation and ego deflation in childhood and the Mignon neurosis are dealt with adequately. One or two rather naïve statements concerning the phonetic analysis of the patient's speech suggest that the author is more at home with analytical discussion than with the analysis of language. The book contains highly technical psychiatric phraseology, but it will interest all physicians and psychologists working with the psychological problems of children.

Health Yearbook 1953. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, and Director, Department of Hygiene, School of Education, Stanford University, Stanford, California. Foreword by David K. Brace, Chairman of Department of Physical and Health Education, University of Texas, Austin. Cloth. \$3.50. Pp. 280. Stanford University Press, Stanford, California; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1953.

Despite a slight change in title, this yearbook follows the pattern of former volumes in presenting abstracts of articles relating to medicine and health education. Most of the material abstracted appeared between July 1, 1952, and June 30, 1953. A total of 101 professional publications provided the source material. The book contains an extensive bibliography, a list of the sources, an author index, and a subject index. Although there is no pretense of complete coverage of the field, a wide range of topics that are of general interest is provided. Each chapter begins with a general summary of the current status of the topic, in which the editor avoids any attempt at interpretation. This volume should be helpful to a wide variety of health education workers. On the jacket is a short quiz patterned after a procedure introduced by the publishers about 10 years ago.

The Autonomic Nervous System. By Albert Kuntz, Ph.D., M.D., Professor of Anatomy in St. Louis University School of Medicine, St. Louis. Fourth edition. Cloth. \$10. Pp. 605, with 94 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This book has long served as the standard reference text on the autonomic nervous system. It covers in great detail the autonomic innervation of the viscera and the functional effects of stimulation or depression of the sympathetic and parasympathetic components. The microscopic anatomy of normal and pathological autonomic ganglion cells is considered in detail. Autonomic centers in the central nervous system are adequately discussed and the concept of chemical mediation of autonomic nerve impulses is touched on briefly. The concluding 100 pages of the book are devoted to a consideration of the role of the autonomic nervous system in various diseases and to surgical procedures involving the autonomic nervous system. An extensive bibliography is included.

Physical Medicine and Rehabilitation. Edited by Basil Kiernander, M.B., B.S., M.R.C.P., Director, Physical Medicine Department, Hospital for Sick Children, Great Ormond Street, London. With introduction by Rt. Hon. Lord Horder, G.C.V.O., M.D., F.R.C.P., President, British Association of Physical Medicine. Cloth. \$12.75. Pp. 610, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

The work of 26 contributors from Great Britain, Canada, and the United States has been combined in this book. Chapters are devoted to a review of the fundamental anatomy and physiology most pertinent to physical medicine and rehabilitation and to psychiatric aspects, care of the injured, geriatrics, rheumatology, neurology, pediatrics, dermatology, pulmonary disease, heart disease, and orthopedic surgery as they apply to this field. There is also a chapter on vocational rehabilitation. Since the book includes viewpoints from three countries it does not present a unanimity of opinion and there is some repetition. This enhances rather than detracts from the value of the book. Every physician, regardless of whether he limits his practice, will find this volume a particularly valuable reference source.

QUERIES AND MINOR NOTES

THE GLYCERIN SUPPOSITORY HABIT

TO THE EDITOR:—*A healthy man of 38 is habituated to the use of plain glycerin suppositories to induce bowel movements. He began three years ago when he had to leave his home at irregular, sometimes very early hours. Now he will not, or cannot, move his bowels without the suppository. The anus is normal, and there is good sphincter contractility. The feces are normally formed. Can the use of these suppositories lead to ill-effects?* M.D., New York.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

ANSWER.—This consultant has never seen any chronic local irritation other than an occasional mild erythema of the anoderm as a result of the habitual use of glycerin suppositories. True, glycerin may be considered as an irritant, but its contact with the anal canal is so transitory in this instance that this man probably should not be concerned.

ANSWER.—The continued use of glycerin suppositories is inadvisable. It is irritating and perpetuates a practice of initiating bowel movements that can be done better by more acceptable methods. The physician should first attempt to eliminate any underlying causes such as emotional tension, unsuitable diets, and organic disease.

The establishment of orderly bowel habits even at the expense of a little extra time in the morning is perhaps one of the most important factors in the average case encountered in general practice. Generally, a leisurely breakfast in a relaxing environment is followed by a desire to defecate. In some normal persons this may occur as often as once after each meal, owing to the gastrocolic reflex. Dietary aids include at least 2 qt. (2,000 cc.) of fluid daily for the adult, fruits or fruit juices (e. g., prune, apple, banana) at every meal, two green vegetables twice daily, and whole wheat bread or cereals. These may be supplemented by the B complex vitamins.

For temporary or occasional use, the hydrophilic colloids, mineral oil, or the magnesium salts are helpful but should never replace psychological and dietary considerations. In some patients there is a tendency for inspissated fecal material to accumulate in the ampulla in a manner amounting almost to an impaction. Then the use of olive oil is advisable in amounts of 1 to 4 oz. (30 to 120 cc.) instilled into the rectum before retiring and left in place overnight. If ineffective, it is supplemented by two tablespoonfuls (30 cc.) of mineral oil by mouth.

Exercise is important, particularly in patients with sedentary occupations. The diaphragm and abdominal muscles are the principal extra-enteric factors in the physiological mechanism of defecation. Bending, breathing exercises, and walking are recommended.

COFFEE WITH OR WITHOUT CREAM

TO THE EDITOR:—*Does black coffee have any more stimulating effect on the nervous system than coffee with cream?*

M.D., Michigan.

ANSWER.—No. Black coffee may be a little more concentrated but the addition of cream does not alter its chemical composition. Any differences noted are due to concentration and speed of absorption, not to any qualitative differences between the two samples of coffee.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

CARDIAC PATIENTS AT HIGH ALTITUDES

TO THE EDITOR:—*What is the effect of altitude on a cardiac patient who is kept well compensated on digitoxin? I have a patient who has spent his whole life in Arkansas at near sea level who wishes to vacation in Colorado at an altitude of 5,000 to 10,000 ft. for a week or two. He weighs 240 lb. at a height of 5 ft. 5 in. He has a moderate degree of pulmonary fibrosis, occasional runs of extrasystoles, and a mean blood pressure of 140/86 mm. Hg. Would such an excursion be harmful?*

Edward J. Novak, M.D., Tuckerman, Ark.

ANSWER.—The vast majority of cardiac patients can visit Colorado cities at an altitude of under 6,500 ft. with no difficulties. Many from the beginning, and most after a week or two, notice no special difference. An occasional patient feels that he is definitely shorter of breath on very mild exertion. On the other hand, many believe they feel better—possibly because of other climatic factors or just because they are on vacation. It is probably unwise for cardiac patients to come from sea level directly to altitudes over 7,000 ft., although many do and feel very well and have no difficulties. In any case, and especially in going to altitudes over 7,000 ft., physical activity should be limited the first couple of weeks. Trips in an auto over passes 10,000 ft. high do not seem to be any problem, but staying overnight at high altitudes should be avoided until there has been some acclimatization.

DIVERTICULUM IN AN INFANT

TO THE EDITOR:—*I saw an autopsy the other day on a baby about 1 year old. It had a diverticulum, and the tip was adhered to the mesentery and quite inflamed with several nodes. The bowel was tucked through the loop several times but circulation was good. The abdomen was not distended. The baby died suddenly. There was no fluid in the peritoneal cavity. Would there be enough toxicity even if the bowel was not strangulated to be fatal?*

H. D. Thomas, M.D., Belleville, Kan.

ANSWER.—It is assumed that the question is regarding Meckel's diverticulum. Such a diverticulum may originate in any segment of the intestine. It is assumed also that in this case the diverticulum originated in the ileum. It is not unusual to find the tip of such a diverticulum fixed or adherent to the mesentery of another segment of the intestine, thus forming a loop. Through such a loop, many segments of intestine or bowel may become fixed. The inquirer emphasized three postmortem findings: 1. The diverticulum did form such a loop into which segments of bowel were found. 2. Circulation to the intestine was apparently good, since there was no distention of the abdomen. 3. There were enlarged nodes in the mesentery. Assuming that there was some heterotopic gastric mucosa in the diverticulum that caused a small ulceration not unlike a gastric ulcer, there would be considerable inflammatory reaction around the diverticulum and also enlarged nodes in the mesentery. Since a large percentage of children, even though apparently quite normal, have marked enlargement of the mesenteric nodes, nodal enlargement may or may not have resulted from the presence of a Meckel's diverticulum. The fact that the abdomen was not distended and there was no evidence of intestinal obstruction would lead one to believe from a clinical standpoint death was not due to intestinal obstruction. Therefore, since no strangulation was present, it seems doubtful that one could say that a toxic condition (which in this case should be imbalance in blood chemistry) was present. In other words, it is not possible to state the cause of death in this case.

ENCEPHALITIS COMPLICATING MEASLES

TO THE EDITOR:—Some time ago a patient came in with a child who had encephalitis following measles, and they brought along an article from Better Homes and Gardens concerning this condition. I was unable to give them any information concerning treatment, and they were very upset. The child had measles at the age of 17 months, and he has never developed mentally. I might mention that there are some mentally deranged persons in the families of both the parents. I will appreciate an opinion on this case.

M.D., South Carolina.

ANSWER.—Encephalitis as a complication of measles has been variously estimated to occur in from 1 in 1,000 reported cases of measles to as high as 1 in 428 reported cases (Hoyne, A. L., and Slotkowski, E. L.: *Am. J. Dis. Child.* 73:554 [May] 1947). When measles encephalitis develops it is nearly always during the period of the eruption and only rarely before the rash is present or after it has disappeared. In some of the series reported, the fatality rate has been as high as 33⅓% and an additional one-third had permanent mental defects. The article mentioned by the parents of the child probably referred to Knouf and Bower's report presented at the last American Medical Association Annual Meeting in New York. It was stated that remarkable recoveries were brought about, even in cases of long-standing, by means of typhoid vaccine injections. This form of shock treatment was at one time used quite extensively in mental institutions. On the basis of your patient's family history, one might wonder whether the child was normal mentally prior to having measles. Sometimes parents of mentally defective children who were abnormal at birth gain a certain degree of satisfaction by attributing deficiencies to an acute infectious disease that was acquired in infancy or early childhood.

COOLEY'S ANEMIA

TO THE EDITOR:—A girl, 12 years of age, has been suffering from Cooley's erythroblastic anemia, and has been under treatment by several physicians since infancy. She has received frequent transfusions of whole blood. Recently she has been receiving 200 mg. of cortisone orally daily. Has any new therapy for this condition been developed?

Albert I. Clark, M.D., Shreveport, La.

ANSWER.—Unfortunately there is no new treatment for Cooley's anemia. Cortisone and corticotropin have not been proved to be of value. Splenectomy is usually not helpful because the defect or abnormality is in the red blood cell itself. However, there are some instances in which secondary "hypersplenism" seems to have developed and to have accelerated the rate of red cell destruction even more (*J. Clin. Invest.* 32:1236 [Dec.] 1953.) Under these circumstances, transfusion requirements would become greater and splenectomy should prove beneficial. Detailed hematological studies; however, including measurement of the survival of normal cells transfused into the patients with Cooley's anemia, would be required in order to identify the secondary "hypersplenism." There is as yet no simpler way to arrive at the diagnosis under these circumstances.

MULTIPLE LIPOMAS

TO THE EDITOR:—What is the latest treatment for multiple subcutaneous lipomas? My patient is a 37-year-old man. Would an injection of hyaluronidase (Alidase) help? His tumors at times become painful, and they are excised.

A. B. Vlahakos, M.D., Pasadena, Texas.

ANSWER.—Subcutaneous lipomas that grow rapidly or become tender or painful should be excised, but otherwise they should only be observed. A differential diagnosis should be established to exclude nonsuppurative relapsing panniculitis, which is sometimes helped by antibiotics. Because of the relatively low vascularity, injection seems contraindicated as it is likely to result in fat necrosis and not to help the major problem.

NPH INSULIN

TO THE EDITOR:—What is meant by the term NPH insulin; also what is the accepted minimum, moderate, moderately large and large doses, in units of insulin, taken daily, in either one injection or multiple injections?

George J. Korby, M.D., Detroit.

ANSWER.—The alphabetical designation "NPH" in the name NPH insulin is derived from the initial letters of the term "neutral protamine Hagedorn." The last word in this group is the name of the Danish investigator in whose laboratory the product was first developed. In accordance with previous action taken by the U.S.P. Insulin Advisory Board, this form of insulin has been designated isophane insulin and the term NPH insulin was retained as a synonym. It is understood that this terminology may be reconsidered by the U.S.P. board. New and Nonofficial Remedies, 1953, describes the actions and uses of the preparation under the present terminology as follows:

"Essentially, isophane insulin is a modification of protamine zinc insulin, but it differs in containing less protamine, more zinc and in being crystalline rather than amorphous in character. The pharmacologic action of isophane insulin is similar to that of the other insulins. Its blood sugar lowering action places it in an intermediate position between globin insulin and protamine zinc insulin. The onset of action for isophane insulin begins usually 2 hours after subcutaneous injection, whereas 6 to 8 hours are required for protamine zinc insulin. Its peak effect occurs 10 to 20 hours after administration, and its duration of action is 28 to 30 hours.

"Isophane insulin may be mixed with regular insulin. Loss of quick action of regular insulin is less with isophane insulin than with similar mixtures of protamine zinc insulin, because isophane insulin contains less available protamine. Used in conjunction with regulation of diet and exercise, this form of insulin is of value in control of severe and labile diabetes. It is not recommended for children below 5 years of age or for patients who require quick-acting insulin."

Since the time of administration, number of doses, and amount of solution must be determined by the needs of the individual patient, in accordance with accurate dietary regulation and clinical study, it is not feasible to state precisely the "accepted minimum, moderate, moderately large and large" daily dose in terms of units of insulin. The report of Henry T. Ricketts (*J. A. M. A.* 150:959 [Nov. 8] 1952) suggests it is best to begin with not more than 10 to 20 units of isophane insulin daily, given one-half hour before breakfast; the dose is then raised 3 to 5 units every three to five days until the urine specimen on rising or the afternoon specimen is sugar-free or nearly so. He also states, "If glycosuria persists after breakfast, 5 to 10 units of crystalline insulin is mixed with the NPH insulin taken before breakfast. If glycosuria persists after supper, a small dose of crystalline insulin may be necessary before that meal. A short-acting insulin should never be given at bedtime when a long-acting preparation is being used."

MAN'S NONFERTILE PERIODS

TO THE EDITOR:—Is there any age at which the human male is considered to be incapable of reproduction?

Jan W. Crow, M.D., San Diego, Calif.

ANSWER.—The time of nonfertility in men varies with racial groups and the individual. Obviously, the nonfertile period starts with birth and continues until the age when fertile sperm are manufactured by the body and the body is capable of emitting them. In this country the average age when this occurs is about 14 or 15 years. This is, of course, followed by a period of potential fertility that ends at the time the body ceases to manufacture fertile sperm and loses its ability to emit them. This generally varies greatly. If one had to assign an age to it, 65 would probably be near the average time when that occurs. There are exceptions, as in an authenticated case recorded, in which fertility remained until the age of 94.

BLOOD CELL COUNTS

TO THE EDITOR:—In a blood cell count done as part of a complete routine periodic health examination, what should be the dividing line below which or above which a recommendation should be made for further evaluation and treatment?

M.D., Pennsylvania.

ANSWER.—The moderately wide range in values for the cellular elements of blood in apparently normal, healthy persons makes a precise answer to this question difficult. The following figures given by Wintrobe are fairly representative of the values reported by various authors for adult human subjects:

	Men	Women
Red blood cell count (millions/cu. mm.)....	5.4 ± 0.8	4.8 ± 0.6
Hemoglobin (gm./100 cc.).....	16 ± 2	14 ± 2
Total leukocytes (per cu. mm.).....	5,000 to 10,000	
Segmented neutrophils	54 to 62%	
Lymphocytes	25 to 33%	
Monocytes	3 to 7%	
Eosinophils	1 to 3%	

Even these ranges include only about 95% of the results on normal subjects. Furthermore, other factors must be taken into consideration. Persons who live at altitudes of 5,000 ft. or more have higher red blood cell and hemoglobin levels. The excitement of a health examination, any emotional disturbance, or physical activity immediately preceding the study may elevate the leukocyte count above 10,000. Technical error is greater than most physicians realize. An increase in the number of reported lymphocytes is more commonly caused by the fact that some technicians examine only the center of blood films than by any other factor.

If all these facts are taken into consideration, then the following rough generalizations can be made. In women, red blood cell counts below 4 and above 6 million per cubic millimeter and hemoglobin levels below 11 or above 17 gm. per 100 cc. require further evaluation. Similar values for young adult men would be below 4.2 or above 6.5 million for red cells, and below 12 or above 18 gm. for hemoglobin. In men above the age of 40, erythrocyte counts above 6 million should probably be regarded with suspicion. Leukocyte levels below 4,000 or above 12,000 per cubic millimeter should lead to further study. The same may be said for percentages of lymphocytes greater than 50, of monocytes greater than 15, of basophils above 5, and of eosinophils above 10. For values between these figures and those given in tabular form above, the presence or absence of other manifestations and clinical judgment must guide the examiner.

USE OF VITAMIN D IN RICKETS

TO THE EDITOR:—Please discuss the use of vitamin D parenterally in the prophylaxis or treatment of rickets, especially when systematic oral administration is doubtful?

Joseph I. Waring, M.D., Charleston, S. C.

ANSWER.—The parenteral injection of vitamin D to infants has not found favor in this country mainly because of the easy availability of many oral preparations of vitamin D or vitamin D in combination with other fat and water-soluble preparations. Recent work in Germany has reawakened interest in parenteral administration of vitamins D₂ or D₃ (Berthold, H.: *Monatschr Kinderh.* 98:110-113, 1950; Roos, *ibid.* 98:457-462, 1950; Kenn, *ibid.* 98:479-481, 1950). Doses ranging from 125 units to 50,000 units of vitamin D₂ or D₃ were given intramuscularly to newborn infants or 4 to 6 week old infants. Greater prevention of rickets was obtained with two 12,500 unit doses given three months apart than with the single 25,000 unit injection. Smaller doses of crystalline D₃ were effective in some patients in hastening the correction of florid rickets. Toxic reaction to the dosages listed above were not encountered. No agreement can be established from the reports that a single injection or several injections once monthly will be certain protection against rickets in all infants. Craniotabes is not an infallible sign of rickets. Roentgenograms of long bones

are more definitive and should be obtained. Prophylactically the well-established principle of daily oral administration of vitamin D would seem to have greater merit as judged from the lack of rickets in this country.

ANTHRAX

TO THE EDITOR:—What is the most effective treatment for anthrax and is there any prophylactic serum worth giving?

Walter L. Twarog, M.D., Lowell, Mass.

ANSWER.—Good results have been reported with large doses of penicillin administered at four hour intervals for a period of about five days. It has also been stated that chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and chloramphenicol (Chloromycetin) are equally effective and that the sulfonamides produce a good response. Formerly an antiserum was used, but it is now difficult if not impossible to obtain. The elimination of the disease in animals is the only sure method of preventing the infection in man. Active immunization is resorted to for animals but is not available for humans. Woolsorters' disease (pulmonary anthrax) may be prevented by adoption of sanitary measures for protection of the workers.

CORK DUST

TO THE EDITOR:—I would like information on the question of cork dust as an irritant in causing pneumoconiosis and also on any allergies associated with cork or cork dust. There are no chemicals involved in my case.

W. S. Nettrour, M.D., Pittsburgh, Pa.

ANSWER.—Cork dust is credited with the property of respiratory tract irritation, but perhaps is no more active than dust from ordinary woods in equal concentration and fineness. No significant pneumoconiosis is expectable. Some cork bottle stoppers are now made from sections of this substance glued together and then are ground down leading to dustiness. This glue, rather than the cork dust, could be the source of allergic disturbances. In many operations in which cork is manipulated, such as the manufacture of cork brick or linoleum, ancillary chemicals have led to distinct damage, including epitheliomas. However, the cork itself never has been implicated. The real danger attending cork dust in a workroom is that of dust explosions.

ABNORMAL BLOOD SUGAR AND DISABILITY INSURANCE

TO THE EDITOR:—An insurance company requested a glucose tolerance test when they noted the history of diabetes mellitus in my mother. A glucose tolerance test on repeated examination revealed an elevated broad diabetic type of curve beginning with a normal fasting blood sugar. I have never had sugar in the urine nor had an abnormal fasting sugar level in the urine nor an abnormal fasting blood sugar level. I was disqualified for disability insurance benefits on the basis of "an abnormal blood sugar." At age 42, with the family history of diabetes mellitus with retinopathy and foot ulcers in my mother and a broad glucose tolerance curve, what is my prognosis? Is any treatment other than weight control indicated?

M.D., Pennsylvania.

ANSWER.—The prognosis would probably be about that of an ordinary person, because knowledge of your mother's condition naturally would favor your living a sensible and cautious life. Even if you actually had diabetes at age 40, the prognosis would be for a life span three-fourths that of your average contemporaries. Control of body weight so that it approximates the standard for your age and height is the most essential protection. As for diet, limit the carbohydrate intake to 250 gm. daily and nearer 200 gm. if the dressed weight is less than 150 lb. (68 kg.). Every three months a test of the blood sugar an hour after the noon meal, together with a test for glycosuria, would be desirable.

ASCHHEIM-ZONDEK TEST

TO THE EDITOR:—In THE JOURNAL, Nov. 28, 1953, page 1229, an answer to a question states that "A positive reaction to the Aschheim-Zondek or other biological test does not always indicate the presence of a pregnancy, a hydatidiform mole or a chorionepithelioma." This is incorrect.

With the 24 hour rat pregnancy test of Frank and Berman (Am. J. Obst. & Gynec. 42:492, 1941; Berman, *ibid.* 64:440, 1952), it is impossible to get a positive result in any of the seven conditions other than pregnancy, hydatidiform mole, and chorionepithelioma outlined in the answer. The test is based on the presence of large amounts of chorionic gonadotropic hormone associated with pregnancy, hydatidiform mole, or chorionepithelioma. In the menopause (spontaneous or artificial), for instance more gonadotropin is excreted than in a normal menstruating woman. However, it is necessary to inject into animals the equivalent of 100 to 200 ml. of extracted urine to elicit a response in routine gonadotropin assays. In the Frank and Berman pregnancy test, a total of 10 ml. of urine (not extracted) is injected into a test animal. One can readily see, therefore, the impossibility of obtaining a positive result with urine from menopausal women, and so with the other conditions outlined. Urines should not be done for pregnancy testing when a patient is taking hormones (except thyroid) because of toxicity to animals. If a test is necessary while a patient is taking hormones, the test should be done with blood serum to obviate toxicity. No false positive or false negative results (e. g., when patient is receiving estrogens for threatened abortion) have been encountered. False positive results are being reported to physicians constantly. The physician should be alerted to the following reasons for these false positive results (and also the dearth of false negative results).

1. False positive results may be obtained if the laboratory performing the test is not following the proper technique. (A patient was referred to our laboratory recently for whom a negative pregnancy test result was issued. The physician who referred the patient called to advise that another laboratory doing the Frank and Berman pregnancy test had reported a positive result for the same patient. Both laboratories repeated the pregnancy test, again getting different results. In conversation with the director of the other laboratory, it was discovered that mature rats weighing 125 gm. had been used when the Frank and Berman pregnancy test specifies immature 50 gm. rats. The other laboratory was reporting on the mature ovaries of the rats rather than on the patient's specimen. This was a menopausal patient.)
2. Pregnancy tests with the male frog as the test animal give not only false negative results but also false positive ones. Every paper published on this test has reported this.
3. Obviously, carelessness in the laboratory in mixing up specimens will give misleading results.
4. Results of the "sink test" are not reliable.

The pregnancy test is used to diagnose pregnancy, the presence of retained fragments of placenta or chorionic tissue, hydatidiform mole, and chorionepithelioma in men as well as women. The pregnancy test will not predict abortion, will not indicate the progress of the pregnancy, will not indicate whether the fetus is dead or alive, will not establish an ectopic pregnancy, and will not reveal the ovulation time.

Certain precautions must be observed by the patient referred for a pregnancy test or the test may be valueless. The instructions to be given patients are as follows: 1. Take no medicaments, including hormones, neostigmine (prostigmine), antihistaminics, laxatives, sulfonamides, quinine, or ergot, for 96 hours prior to the test. 2. Drink no alcoholic beverages for 24 hours prior to test. 3. Save the first urine on arising plus any urine that may be obtained during the sleeping period and refrigerate the specimens immediately and until they are brought to the laboratory. 4. Bring a 2 oz. (60 cc.) specimen to the laboratory in the morning.

Rose L. Berman
Berman Clinical Laboratory
134 W. 58th St., New York 19.

OTOSCLEROSIS

TO THE EDITOR:—I would like to comment on the answer to the query on page 101 of THE JOURNAL, Jan. 2, entitled "Otosclerosis." I object to the diagnosis being made without at least knowing the findings of a properly done air conduction and bone conduction audiogram. I also take exception to the fact that no suggestion was made regarding the possibility of having fenestration surgery done if adequate cochlear reserve is present, particularly in a person only 36 years old. May I conclude by saying I greatly enjoy your section on Queries and Minor Notes.

James W. McLaurin, M.D.
Reymond Bldg., Baton Rouge, La.

TO THE EDITOR:—In reply to a letter in THE JOURNAL, Jan. 2, 1954, regarding a patient with progressive loss of hearing and tinnitus, it was stated that this condition might have been otosclerosis. It was mentioned that any known therapy was useless, and a hearing aid was recommended if the deafness continued. If the case is one of pure conductive deafness wherein there is little or no acoustic nerve deterioration, and if the hearing falls below a practical level bilaterally, it should be mentioned that a fenestration operation can be performed with an excellent chance of restoring the patient's hearing to a serviceable level. The percentage of success in such a patient, who is classified as a class A candidate for this operation, is about 70% and class B 50%. Anyone with less chance of success should probably wear a hearing aid rather than undertake the fenestration operation.

James E. Coyle
573 Fisher Bldg., Detroit 2.

TO THE EDITOR:—On page 101, THE JOURNAL, Jan. 2, there is an answer to a query as to the proper treatment for progressive loss of hearing and tinnitus aurium of a year's duration. The answer given was so misleading that I think correction should be made. First of all, one cannot tell from the question whether this patient has otosclerosis, since an adequate hearing test is not reported. Secondly, if clinical otosclerosis is present, the answer failed to mention what is probably the most outstanding surgical procedure of the present century, namely, the fenestration operation for the restoration of hearing in persons with otosclerosis. Since this can correct hearing in 80% or more of suitable cases so that patients can return to normal useful lives without the use of a hearing aid, it would seem that such a possibility should be mentioned.

Charles A. Tucker, M.D.
Medical Bldg., Hartford 6, Conn.

TO THE EDITOR:—The answer to Dr. Daniel Burman's query on otosclerosis published in THE JOURNAL, Jan. 2, is inaccurate. In the first place, the diagnostic criteria for otosclerosis mentioned in the answer are erroneous and might cover any number of cases of nerve deafness. Otosclerosis is a conduction-type of hearing impairment with good bone perception and usually there is a normal eustachian tube, middle ear, and drum.

The statement that "any known therapy is useless" is untrue, and the experience of thousands of otologists and patients contradicts it. At the last meeting of the American Otological Society, Dr. Julius Lempert was given a medal of honor as the otologist who had contributed most to the present generation for his work on the fenestration operation. In patients with true otosclerosis and no marked nerve degeneration the fenestration operation is a great boon.

P. W. Snelling, M.D.
111 Pearl St., Hartford 3, Conn.

TO THE EDITOR:—We feel that a more accurate reply is indicated to the question on otosclerosis in Queries and Minor Notes in THE JOURNAL, Jan. 2, and wish to add our comment to the many we are sure you will receive regarding this reply. Certainly the excellent results obtained by the fenestration operation warrant its consideration.

Walter E. Heck, M.D., Robert C. McNaught, M.D.,
and Miriam H. Rutherford, M.D.
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GALLBLADDER DISEASE IN ADOLESCENTS AND YOUNG ADULTS

George D. J. Griffin, M.D.

and

Lucian A. Smith, M.D., Rochester, Minn.

Since the beginning of the era of modern medicine, students have been taught that disease of the gallbladder is an affliction of the middle or later years of life. All physicians have heard variations of the "fair, fat female of 40." It is well to indoctrinate medical students with such easily remembered maxims, but this particular aphorism is better forgotten, for it can lead to serious error. As an example, it was not unusual to read in the histories of the cases of gallbladder disease in the adolescent and young adult that are reported, "Age of patient against the diagnosis of cholecystitis, but . . ."

An effort was made to estimate as closely as possible the occurrence of disease of the gallbladder in adolescents and young adults seen in a community the size of Rochester, Minn., which has a population of approximately 30,000.

METHODS

The records of all permanent residents of Rochester who had disease of the gallbladder and in whom the diagnoses were made at the Mayo Clinic for the first time during the years 1948 and 1949 were surveyed. The resulting estimate suffers in that all patients who had this disease in Rochester during those years were not seen at the clinic. Local physicians undoubtedly saw many such patients during this period. However, these records probably do include all instances in which cholecystectomy was performed on residents during those years.

To be certain that the patients in this study actually had disease of the gallbladder, only those patients were included in whom gallstones were evident on roentgenographic study or in whom pathological examination after operation proved the presence of cholecystitis. This undoubtedly excluded many patients in whom medical management was used, such as those in whom nonfunctioning gallbladders were present without evidence of formation of stones after repeated roentgenograms and those in whom typical biliary colics had occurred but who had not undergone gallbladder roentgenography or operation. In the last group were a great many adoles-

cents and young adults who will in time have proved cholecystitis by the aforementioned standards. Also excluded were patients who had metastatic carcinoma of the gallbladder and complications of diseased gallbladders, such as postcholecystectomy syndromes of choledocholithiasis, stricture, or spasm of the common bile duct. It should be noted that this report includes no patients who had "silent gallstones" who were less than 35 years of age. Such patients undoubtedly exist yet remain undetected because of the absence of other diseases that would bring them to medical investigation, thus allowing incidental disclosure of the gallstones.

The remaining patients were divided into four categories: (1) those in whom cholecystectomies were performed; (2) those who were under medical management and who were currently symptomatic; (3) those who were currently asymptomatic; and (4) those who had primary carcinoma of the gallbladder.

For interest, a survey was made of the records of all patients 25 years of age or less, resident or nonresident, who were operated on at the clinic during the years 1948 and 1949 for diseases of the gallbladder. It was thought that by expanding the number of patients in this age group and limiting the patients considered to only those who had disease of the gallbladder proved by operation, we might obtain information concerning the frequency of congenital hemolytic icterus as a cause of disease of the gallbladder in young persons.

RESULTS

This study included 245 patients, of whom 154 had been operated on for cholecystitis, 65 were currently symptomatic and under medical management, 21 were asymptomatic, and 5 had carcinoma of the gallbladder. Analysis of the ages of these patients (see table) showed that cholecystic disease occurred in all age groups beginning with 15 years, a fact at variance with the common concept of the age incidence. It must be pointed out again, however, that this estimate suffers by the absence of many nonsurgical patients in all age groups.

Fellow in Surgery, Mayo Foundation (Dr. Griffin), and Division of Medicine, Mayo Clinic and Mayo Foundation (Dr. Smith). The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

The analysis shows that 3.3% of the patients were 20 years of age or less, 2.9% were between 21 and 25 years of age, and 8.2% were between the ages of 26 and 30. Thus, 6.2% were 25 years of age or less, and 14.4% were 30 years of age or less. In this latter combined group, the mean age was 24 years. The mean age of these patients at the onset of symptoms of cholecystic disease was 18 years; thus disease of the gallbladder begins at an age that is even less than our figures would imply.

The influence of the sex of the patient in cholecystitis is undeniable. Of the 240 patients who had noncarcinomatous cholecystitic disease, only 35 (14.6%) were males. The sex incidence is not wholly dependent on pregnancy, for of the 15 resident patients who were 25 years of age or less, only 4 had been pregnant.

While it is known that cholecystic disease is a complication in more than 50% of patients who have congenital hemolytic icterus, it does not follow necessarily that a majority of adolescents and young adults who have cholecystitis also have congenital hemolytic icterus. Cholecystectomies were done in 1948 and 1949 on 40 resident and nonresident patients who were 25 years of age or less; 3 were males. Two of these 40 patients pre-

was done. Pathological examination disclosed chronic ulcerative cholecystitis with multiple (seven) stones, each 2 mm. in diameter.

CASE 2.—The patient was a 15-year-old girl who had had 10 attacks of right subcostal pain with nausea and vomiting, but little abdominal tenderness. During the last two attacks, pain had extended to the back. Her mother had noted gallbladder colic at the age of 17 and had undergone cholecystectomy at the age of 28. Roentgenograms showed a functioning gallbladder with stones. Operation was postponed because the patient was obese.

CASE 3.—The patient was a 25-year-old woman who, since the age of 6, had experienced many attacks of upper mid-epigastric pain. The pain was of sudden onset and was severe and colicky in nature; it often extended to the right scapula and was followed by nausea and vomiting. She recalled several such attacks during her years at grammar school, two during high school, and four in the previous four years. No history of jaundice was obtained. Each attack had required hypodermic injections for relief of pain. Residual pain in the epigastrium usually lingered for three days. Fever and leukocytosis had been present during the recent attacks. Gallstones had been found during roentgenography four years prior to registration at the clinic. Her brother had disease of the gallbladder. Roentgenograms of the gallbladder taken during examination at the clinic disclosed no abnormalities. The patient refused operation.

Age Incidence in 245 Cases of Gallbladder Disease

Diagnosis	Age, Yr.													Total
	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76 or More	
Cholecystitis; surgical treatment.....	6*	4	18	16	14	15	17	21	13	13	11	2	4	154
Cholecystitis; medical treatment; symptomatic....	2	3	2	3	2	3	5	8	10	11	7	4	5	65
Cholecystitis; asymptomatic.....	..	..	..	..	2	2	3	3	2	4	2	3	1	21
Carcinoma of gallbladder.....	..	..	..	..	..	..	..	..	1	1	2	1	..	5
Total	8	7	20	19	18	20	25	32	26	29	21	10	10	245
Percentage	3.3	2.9	8.2	7.7	7.3	8.2	10.2	13.1	10.6	11.8	8.5	4.1	4.1	100.0

* One patient was 14 years of age.

sented conclusive clinical, laboratory and pathological evidence of hemolytic disease in addition to cholecystitis; 2 others had questionable evidence of hemolytic icterus. In one of these last two patients, the spleen was removed; it was proved later that the patient had Hodgkin's disease of the bones. Thus, neither congenital hemolytic icterus nor pregnancy can be called a prime cause of cholecystitis in adolescents or young adults.

The following cases are illustrative of histories that were encountered frequently during this study. We have been impressed by the occurrence of a family history of disease of the gallbladder in a majority of those cases of cholecystitis that we have seen. When such a familial background was not reported in a given case in this study, it usually represented failure to search for this valuable diagnostic aid. The report of Dixon and Owen¹ supports this opinion.

REPORT OF CASES

CASE 1.—The patient was a 14-year-old girl. One year prior to registration at the clinic, pain appeared in the right upper quadrant; this pain radiated to the right scapula and was associated with nausea, vomiting, and tenderness in the right upper quadrant of the abdomen. Three such attacks occurred during the year. No family history was recorded. Roentgenograms showed a nonfunctioning gallbladder. Cholecystectomy

CASE 4.—The patient was a 27-year-old woman. Between 11 and 14 years of age, the patient had noted dyspepsia after eating fried or fatty foods; this was associated occasionally with mild right subcostal nonradiating pain. She had experienced no difficulty again until the age of 19, at her first pregnancy. At this time and during each of six pregnancies thereafter, she had had one or two mild to severe attacks of typical gallbladder colic. During the last episode, which was severe, she had been jaundiced for the first time. No family history was recorded. Cholecystectomy was done. Pathological examination disclosed subacute and chronic cholecystitis with multiple stones; a stone was present in the common bile duct.

This case illustrates cholecystitis present before but accentuated by pregnancy.

CASE 5.—The patient was a 40-year-old woman for whom a gallbladder diet had been prescribed at the age of 20 because of attacks of pain in the upper part of the abdomen and gaseous distention with severe malaise; these symptoms were accompanied by a desire to vomit or belch but an inability to do either. Since then, she had experienced three to four attacks a year after meals. The distress was described as "discomfort which sits below the breastbone like a fist." The duration of an attack was one to two hours. Through the years she had had dyspepsia after eating greasy foods, cabbage, or pork. The last acute episode had occurred after eating cabbage. She had been pregnant twice, at 19 and 21 years of age. Roentgenograms taken two years before registration showed nothing abnormal. Roentgenograms taken at the clinic revealed a functioning gallbladder with stones. Her mother had "died of gallstones." One sister and a brother had had cholecystectomies. Operation was refused by the patient.

1. Dixon, C. F., and Owen, H. W.: Cholelithiasis: Familial Predisposition, *S. Clin. North America* 32: 1177-1180 (Aug.) 1952.

This case demonstrates a 20 year history of probable cholecystic disease beginning in early adult years with distress that was moderate to severe on several occasions each year; in spite of this, the gallbladder was demonstrated roentgenographically to be functional at the age of 38.

CASE 6.—The patient was a 29-year-old woman who had had severe epigastric colic at the age of 16; this occurred three days post partum. The attack came after a meal of pork and beans. Later she had been told that she had disease of the gallbladder. She had noted distress throughout the years after eating cabbage, onions, and uncooked apples. Frequent colics occurred, requiring hypodermic injections for relief of pain. A nonfunctioning gallbladder had been diagnosed by roentgenograms one year before registration at the clinic. Since then she had experienced numerous colics, not being free of symptoms for more than a month at a time. She had had almost continual colic during the six weeks before coming to the clinic. Diffuse soreness in the right upper abdominal quadrant had been present; this was referred to the right subscapular region when most severe. Some nausea and vomiting and questionable chills but no jaundice or fever had been noted. Her paternal grandmother had had disease of the gallbladder.

Examination revealed a palpable gallbladder extending down to the level of the anterior superior iliac spine. Cholecystectomy was done. Pathological examination disclosed subacute and chronic cholecystitis with multiple stones ranging up to 2 cm. in diameter; hydrops of the gallbladder was present.

This patient had refused operation for 13 years because of fear.

CASE 7.—The patient was a 56-year-old woman. From the age of 17 and until the age of 30, she had experienced numerous attacks of severe epigastric pain that extended around the right subcostal margin to beneath the right scapula; the attacks lasted 10 to 20 minutes and occurred three to four times each month. From the age of 30 until 7 months before examination at the clinic, she had continued to have these episodes but at less frequent intervals. During the 7 months prior to registration, attacks occurred every 10 to 14 days. She had been extremely intolerant throughout the years to fried or greasy foods. Often she had noted dyspepsia and belching. She had been pregnant five times, first at the age of 21. Her mother, two sisters, and one daughter had had cholecystic disease. There was no history of congenital hemolytic icterus. Cholecystectomy was done. Pathological examination disclosed chronic cholecystitis with multiple stones.

This case demonstrates the human capacity to tolerate severe and limiting illnesses. The patient had a 39 year history of intermittent severe distress.

COMMENT

This study emphasizes the fact that cholecystitis occurs in adolescents and young adults. The value of early diagnosis and early surgical extirpation of the calculous gallbladder has been stressed sufficiently in the past. Too often age, infection, or formation of stones in the biliary tree and hepatic damage have increased needlessly the surgical risk to the patient.

The impression was obtained in the practice of one of us (L. A. S.) that the commonly used dictum of the "fair, fat female of 40" can lead to serious error. This impression appears to be confirmed by this study. Among the cases of disease of the gallbladder in adolescents and young adults just reported, such initial diagnoses were made as abdominal migraine, appendicitis (with not uncommonly an appendectomy), Meckel's diverticulitis,

duodenal ulcer, hepatitis, pyelitis of pregnancy, nephritis, and functional abdominal pain. While such conditions occasionally can simulate cholecystitis and vice versa, it was clear in many instances that the diagnostician considered that the possibility of cholecystitis occurring in such young patients was exceedingly remote.

The concept of the "typical" or "classical" has its place in teaching the art of medicine. Dictums such as the one under attack are honest efforts to simplify learning in a difficult field. A majority of patients who have disease of the gallbladder are more than 40 years of age. But when nearly a third of patients are less than this typical age and when as many patients who have this disease are between the ages of 26 and 30 as are between the ages of 41 and 45, it is questionable whether this particular maxim has any real teaching value. Furthermore, when experienced physicians consider excluding the possibility of this common disease because the patient does not fit a pattern, it suggests that the pattern is too widely advertised and too rigidly considered. Therefore, this concept would be better forgotten.

SUMMARY

An effort was made to estimate as closely as possible the incidence of disease of the gallbladder in adolescents and young adults in a community the size of Rochester, Minn. A study was conducted of the records in 245 cases of cholecystic disease among permanent residents of Rochester in whom the diagnoses were made at the Mayo Clinic during the years 1948 and 1949. In addition, records were studied in 40 cases representing all patients 25 years of age or less on whom cholecystectomies were performed in 1948 and 1949. Neither pregnancy nor congenital hemolytic icterus appears to play a large part in the production of cholecystic disease in adolescents and young adults. It is suggested that the dictum "fair, fat female of 40" as a concept of the typical patient who has disease of the gallbladder be abandoned, because it can lead to serious error.

Appendicitis in Babies and the Aged.—Appendicitis occurring at the extremes of life may easily mislead us. A baby does not often get appendicitis, but when he does he cannot tell us much about it. He is sick and he yells, but all babies do that. The danger is that acute appendicitis in a baby very quickly goes on to general peritonitis, and general peritonitis in a baby is fatal. We can safeguard ourselves by making it an invariable rule never to leave our examination of a child complaining of abdominal pain without examining the right iliac fossa. Old people again are not very likely to suffer from acute appendicitis, but when they do the attack may be latent. . . . When they get colic and vomiting they have often had it before; they take a dose of salts or soda-bicarb and put a hot bottle on their tummies. When they feel as if they have a temperature they take a couple of aspirins. They are seen by the doctor when they have a large localized abscess. A fairly common story is that of an old man whose only complaint is of the frequent passage of stools containing little but blood and mucus. This story at once suggests a carcinoma of the rectum or pelvi-rectal junction, except that he has a temperature, has been ill for a fortnight only and has not lost weight. On putting a finger in the rectum, in place of the growth we expect, we find the doughy tender mass of a pelvic abscess bulging the anterior wall.—H. Ogilvie, M.D., *Misleading Cases, Medical World*, November, 1953.

SURGICAL ASPECTS OF CHOLEDOCHOLITHIASIS

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and

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The problem of common duct stones has been discussed frequently in the past decade. That continued emphasis and discussion are advisable is suggested by the history of previous operation on the biliary tract in 27% of our patients who had choledocholithiasis. Other authors have noted a similar incidence of previous, unsuccessful operations in patients with common duct stones.¹

A group of 175 consecutive cases in which common duct stones were removed at operation by one of us (J. M. W.) during the period from 1940 to July, 1950, have been reviewed. The only cases discarded from the series were those in which choledocholithiasis was associated with tumors and strictures of the common duct or acute pancreatitis and the latter conditions were the primary consideration, clinically and at operation. Although such a study does not provide data on the incidence of choledocholithiasis in patients undergoing cholecystectomy, the incidence has ranged from 10 to 16% at the Mayo Clinic in the past few years.²

SYMPTOMATOLOGY

The sex ratio was somewhat unusual, with 108 women and 67 men, a ratio of only 1.6 to 1.0. The ages of the patients ranged from 25 to 80 years and averaged 55.6 years.

Pain.—Typical biliary colic, severe enough to necessitate the administration of hypodermic injections for relief, was present in 125 patients (71.4%). Pain that was atypical in location but severe enough to require hypodermic medication (6 patients) and typical colicky pains of only moderate severity (7 patients) might well be included in the so-called typical biliary colic group because of the recognized variability of biliary tract pain (total

incidence, 79%). In the 37 patients remaining, the pain was classified as atypical in location and occurrence in 21, and was essentially absent in 16 patients (9%).

A history of very frequent episodes of colic was a notable feature in very few patients of this series. Certain authors have stressed the importance of episodes occurring at intervals of 14 days or less as evidence of the presence of stones in the common duct.³

Jaundice.—A clinical diagnosis of jaundice was made on admission in 86 cases, and in 36 of this group there was also a history of previous episodes of jaundice. A previous history of jaundice was noted for an additional 28 patients. A total of 114 patients, or 65% of the entire series, thus gave a history or clinical evidence of jaundice. Thirty-five per cent had never been aware of any jaundice.

The inadequacy of jaundice alone as an indication of the presence of common duct stones in cholelithiasis patients has been noted by many authors. The incidence of jaundice with choledocholithiasis has varied from 53 to 76% in previous studies.⁴ Jaundice has greater significance when accompanied by severe pain and intermittent acholic stools⁵ than when not so accompanied, and Buxton and Burk have stressed the importance of recent and frequent episodes of jaundice.^{4a}

Conversely, the absence of jaundice is no guarantee of the absence of common duct stones. Thirty-five per cent of the patients in this series had no jaundice, similar figures from the literature ranging from 24 to 47%.

Nausea and Vomiting.—Symptoms of nausea and vomiting occurred in 111 patients (74% of the 150 records in which their presence or absence was specifically noted). Nausea alone was noted in 19 instances, while no nausea or vomiting had occurred in 20 (13%) of the patients.

Chills and Fever and Acholic Stools.—Sixty-four patients gave a history of chills and fever. Fever alone was reported in 18, and chills without positive evidence of fever in an additional 3 patients. A definite history of very light or clay-colored stools was obtained in only 35% of the cases.

ROENTGENOGRAPHIC FINDINGS

Table 1 lists the results of the roentgenographic studies carried out on this group of patients. In interpreting the 12 simple roentgenograms of the abdomen in which calculi were visualized, the roentgenologist suggested that the stones were located in the common duct in 5 instances.

Cholecystograms were not ordered in 85 cases, in 49 because of the presence of jaundice too severe to expect an accurate roentgenogram and in 29 because of previous cholecystectomy. In seven patients the test was not carried out because of the presence of biliary fistulas or other complicating factors. The cholecysto-

From the Division of Surgery (Dr. Waugh) and the Division of Medicine (Dr. Cain), Mayo Clinic; Fellow in Surgery, Mayo Foundation (Dr. Johnston).

1. (a) Davidson, C. L.; Hirsch, S., and Angrist, A.: Survey of Common Duct Stones in Clinical and Necropsy Cases, *Am. J. Surg.* 78: 486-489 (Oct.) 1949. (b) Glenn, F.: Common Duct Exploration for Stones, *Surg., Gynec. & Obst.* 95: 431-438 (Oct.) 1952.

2. (a) Priestley, J. T.; Walters, W.; Gray, H. K., and Waugh, J. M.: Annual Report on Surgery of Biliary System and Pancreas for 1949, *Proc. Staff Meet., Mayo Clin.* 25: 685-692 (Dec. 6) 1950. (b) Priestley, J. T.; Walters, W.; Gray, H. K., and Waugh, J. M.: Annual Report on Surgery of Biliary System and Pancreas for 1950, *ibid.* 26: 505-513 (Dec. 19) 1951. (c) Walters, W.; Gray, H. K.; Priestley, J. T., and Waugh, J. M.: Annual Report on Surgery of Biliary System and Pancreas for 1947, *ibid.* 23: 615-622 (Dec. 22) 1948. (d) Waugh, J. M.; Walters, W.; Gray, H. K., and Priestley, J. T.: Annual Report on Surgery of Biliary System and Pancreas for 1948, *ibid.* 24: 657-661 (Dec. 21) 1949.

3. (a) Allen, A. W., and Wallace, R. H.: Surgical Management of Stone in Common Bile Duct: Follow-up Studies with Special Reference to Graded Dilatation of Sphincter of Oddi, *Ann. Surg.* 111: 838-847 (May) 1940. (b) McKittrick, L. S., and Wilson, N. J.: Indications for and Results Following Exploration of Common Bile Duct for Stones, *California Med.* 71: 132-137 (Aug.) 1949.

4. (a) Buxton, R. W., and Burk, L. B., Jr.: Cholelithotomy, *Surgery* 23: 760-767 (May) 1948. (b) Colcock, B. P.: Cholelithostomy: Its Place in Surgery of Biliary Tract, *S. Clin. North America* 28: 641-647 (June) 1948. (c) Davidson,^{1a} McKittrick and Wilson.^{2b}

5. Cole, W. H., and Grove, W. J.: Persistence of Symptoms Following Cholecystectomy with Special Reference to Anomalies of Ampulla of Vater, *Ann. Surg.* 136: 73-82 (July) 1952. Cole, W. H.: Recent Trends in Gallbladder Surgery, *J. A. M. A.* 150: 631-637 (Oct. 18) 1952.

grams were helpful in diagnosing the presence of cholecystic disease in 89% of the 90 cases in which they were indicated.

PREVIOUS BILIARY SURGICAL PROCEDURES

Forty-seven patients (27%) had undergone previous surgical procedures on the biliary tract or had had previous exploration for complaints that eventually proved to be of biliary causation. Only three of these earlier procedures had been done at the Mayo Clinic, two of them having been cholecystostomies for very acute processes.

Sixteen patients had had more than one biliary procedure, one patient having undergone four operations previously. Davidson and associates reported a 39% incidence of previous biliary tract operations in a series of patients found to have stones in the common duct.^{1a}

Cholecystectomy had been done in 29 patients. Only four of these patients gave a definite history of choledochotomy at the first operation, while four additional patients had common duct explorations as secondary procedures due to persistence or recurrence of symptoms.

Cholecystostomy had been the initial surgical procedure in 20 patients. Six of the 20 had undergone additional operations on the biliary tract because of recurrent symptoms, one cholecystectomy alone, and two cholecystectomy plus choledochotomy.

Choledochotomy alone had been carried out in one additional case. Thus, among the 47 choledocholithiasis patients previously operated on, a total of only 11 had a definite history of exploration of the common duct. More significant is the observation that, of the 16 patients who had undergone multiple biliary surgical procedures, only 6 patients (38%) were known to have undergone exploration of the common duct.

Although these figures on choledochotomy are based on the patient's history alone in certain instances, they serve to point out the frequency of this rather obvious indication for choledochotomy, the persistence or recurrence of definite symptoms such as biliary colic, jaundice, chills and fever, or prolonged drainage from the incision following previous biliary operative procedures.

The 11 patients in whom the common duct had been explored previously thus represent the problem of overlooked or re-formed stones in the common duct. The symptoms are of interest in eight of these cases in which no modifying circumstances were present on admission (such as the presence of a T-tube or operative choledochoduodenostomy). The onset of recurrent symptoms was within an average period of six and a half months following operation, and in all cases within two years. In four cases the symptoms recurred within a month following operation, and in one case each the onset was 4, 7, 12, and 24 months after operation. Severe biliary colic was noted in only three cases; jaundice had been present in six patients, nausea and vomiting in seven, and chills and fever in five patients.

A history of prolonged drainage of bile from the incision postoperatively was elicited in 15, or approximately one-third, of the 47 patients who had undergone previous exploration. Although the importance of this finding has been stressed in the diagnosis of strictures of the common duct, few authors have recorded its inci-

dence in those choledocholithiasis patients in whom any part of the extrahepatic biliary tract has been opened and in whom stones remain in the common duct. That an external biliary fistula will often heal within three to four weeks even in the presence of residual stones in the common duct has been pointed out by Hicken and associates.⁶ Before discussing further the indications for exploration of the common duct, let us briefly review the gallbladder and associated pathological findings that occur in such a series of patients with choledocholithiasis.

ASSOCIATED PATHOLOGICAL FINDINGS

In the 146 cases in which the gallbladder was present, the pathological findings were predominantly those of chronic cholecystitis with superimposed elements of sub-acute or subsiding acute cholecystitis. Acute cholecystitis was reported in nine specimens.

The gallbladder was found to contain stones in 122 of the 146 cases. Review of the 24 cases in which stones were absent from the gallbladder revealed the following facts: Ten patients had previously undergone cholecys-

TABLE 1.—Roentgenographic Findings

Finding	No. of Cases	Per-centages
Simple Roentgenograms of Abdomen		
Positive or strongly suggestive of stones.....	12	25.5
Negative for stones.....	35	74.5
Total	47	100.0
Cholecystograms		
Normally functioning gallbladder		
Without stones.....	3	3.3
With stones.....	9	10.0
Nonfunctioning gallbladder		
Without stones.....	41	45.6
With stones.....	17	18.9
Poorly functioning gallbladder		
Without stones.....	4	4.4
With stones.....	9	10.0
Unsatisfactory examination.....	7	7.8
Total	90	100.0

tostomy with removal of the stones present in the gallbladder, and in three of these patients external biliary fistulas had developed postoperatively through which any remaining stones might have escaped. Spontaneous internal biliary fistulas (cholecystoduodenal) were present in 3 of the 14 cases in which operation was not done. The calculi in the remaining cases (11) had presumably escaped into the common duct. The latter situation represents another indication for choledochotomy: a history of biliary colic or obstructive jaundice in the patient who exhibits a diseased gallbladder roentgenographically and in whom the gallbladder is found not to contain stones at operation. This indication is subject to possible exceptions by a history of previous cholecystostomy or development of internal biliary fistulas.

Noted in two cases were markedly dilated gallbladders which were exceptions to Courvoisier's well-known rule. Three patients who had undergone operation previously had remnants of a gallbladder, two of which contained stones.

6. Hicken, N. F.; McAllister, A. J.; Franz, B., and Crowder, E.: Technic, Indications and Value of Postoperative Cholangiography, *Arch. Surg.* 60: 1102-1113 (June) 1950.

Biliary fistulas were present in 18 (10.3%) of the 175 patients with stones in the common duct. These were cholecystocutaneous in four patients, all of whom had previously undergone a cholecystostomy. Cholecystenteric fistulas were present in 11, 9 to the duodenum, one to the duodenum and colon, and one to the colon alone. Eight of these were spontaneous; three followed previous cholecystostomy.

TABLE 2.—Incidence of Five Accepted Indications for Cholelithotomy (175 Cases)

Indication	No. of Cases	Percentage
Jaundice	114	65.1
Dilatation of the common bile duct.....	135	77.1
Thickening of the common bile duct.....	28	16.0*
Stones palpable in the common bile duct.....	45	25.7
Multiple small stones in the gallbladder		
Without dilated cystic duct.....	8	7.4
With dilated cystic duct.....	6	

* Thickening of the duct wall is probably present in a much larger percentage of cases than is noted in this series. The finding is difficult to evaluate and was not specifically recorded in many cases in which dilatation was the predominant change.

In two cases in which the previous operations included choledochotomy, fistulas later developed from the stump of the cystic duct to the skin. In the remaining case an accessory bile duct, which was presumably severed at previous cholecystectomy, acted as a safety valve for the obstructed common duct and a fistula developed from the accessory duct to the skin. This latter, isolated occurrence serves to point out the clinical importance of the extrahepatic accessory biliary ducts that were of such size and location to be noted at operation in three patients of this series, and which one of us found in 31% of a group of carefully dissected anatomic specimens.⁷

Associated pancreatitis was diagnosed at operation in 56 of the 175 patients (32%). McKittrick and Wilson noted a 10% incidence of pancreatitis in 100 cases of choledochotomy in which common duct stones were found in 52%.^{3b} The process was chronic and of moderate to low grade severity in 48 patients in our series. Those cases in which the findings were equivocal or minimal are not included. Subacute pancreatitis was present in four cases, while the process was classified as a subsiding acute pancreatitis in four others. The serum amylase level was elevated in six of these eight patients, the serum lipase was elevated in one, and moderate fat necrosis was present in the abdomen in one.

The true incidence of pancreatitis in association with choledocholithiasis is difficult to determine with accuracy. Evaluation of low-grade pancreatitis by palpation of the pancreas alone is sometimes misleading, even to the experienced surgeon. The cases in which acute pancreatitis was the outstanding feature clinically were not included in this study, as noted previously.

INDICATIONS FOR EXPLORATION OF THE COMMON DUCT

The evaluation of any single indication for exploration of the common duct is complicated by the presence of multiple indications in many cases. Table 2 presents the over-all incidence of five well-accepted indications for choledochotomy noted as significant in the 175 explorations reviewed in which abnormalities were found.

There is little disagreement regarding the first four indications, especially if more than one is present. With present-day methods the mortality resulting from cholecystectomy has not been significantly increased by the addition of choledochotomy, particularly in those cases in which the exploration of the common duct has revealed no abnormality.⁸ The factors that have caused choledochotomy to be associated with an increased mortality in the past are the prolonged presence of intermittent biliary obstruction, cholangitis, jaundice, and progressive hepatic damage plus multiple operative procedures. The increased mortality in the jaundiced patient has been noted previously.^{2d}

In order to decrease further the mortality associated with common duct stones and their removal, we must set as our goal the careful exploration of every common duct about which any suspicion of choledocholithiasis exists. It has been well demonstrated that the higher the percentage of ducts explored at the time of cholecystectomy, the greater the number of patients found to have stones in the common duct.⁹

Accepting a group of major indications such as those listed in table 2, the surgeon should not restrict his explorations of the common duct to cases in which there is only this limited group of indications. Rather, a more comprehensive understanding of the changes associated with choledocholithiasis should be realized, and the less frequent indications, which may be the only basis for suspecting the presence of common duct stones in a given case, must be given greater emphasis.

Additional indications that were present less frequently in this series were as follows: There was a history of previous cholecystectomy with recurrence of

TABLE 3.—Incidence of Single Indications Noted for Cholelithotomy

Single Indication	No. of Cases
Dilatation of the common bile duct.....	23
Palpable stone or stones in the common bile duct.....	5
Jaundice	5
Multiple small stones in gallbladder.....	4
Pancreatitis present.....	1*
Recurrent symptoms, previous operation on gallbladder....	1*
Very frequent attacks of biliary colic.....	1*
Purulent bile escaped from cystic duct.....	1*
Sediment noted in aspirated bile from common duct.....	1*
Total.....	42

* One of the five cases referred to in the text.

definite symptoms in 29 patients. In 9 cases in which there had been recent, definite, biliary symptoms the gallbladder was found not to contain stones. Pancreatitis, noted on palpation of the gland, was a significant factor in four cases. A history of very frequent biliary colic was present in three cases. Persistent drainage of bile from the incision following a previous biliary operation was

7. Johnston, E. V., and Anson, B. J.: Variations in Formation and Vascular Relationships of Bile Ducts, *Surg., Gynec. & Obst.* 94: 669-686 (June) 1952.

8. Glenn,^{1b} Waugh,^{2d} Colcock.^{4b}

9. (a) Allen, A. W.: Diagnosis and Treatment of Stones in Common Bile Duct, *Surg., Gynec. & Obst.* 62: 347-357 (Feb.) 1936. (b) O'Shea, M. C.: Stones in Ductus Choledochus: Analysis of 2,602 Cases of Biliary Tract Disease at St. Vincent's and Harlem Hospitals in Last 250,065 Hospital Admissions, *Am. J. Surg.* 57: 279-293 (Aug.) 1942. Allen and Wallace.^{2a} Colcock.^{4b}

noted as a significant factor in two patients. The roentgenogram revealed stones in the region of the common duct in one patient, and the history included frequent episodes of chills and fever in one patient.

The foregoing factors were not merely incidental observations, but in most instances were noted on the operative report as significant factors in the decision to explore the common duct. Table 3 serves to stress the significance of certain of these indications in 5 of the 42 (12%) cases in which only one indication for exploration of the common duct was noted.

Table 4 summarizes the data on 70 patients in whom only two indications were noted. It should be noted how the less frequent indications acted as confirmatory factors for one of the commoner indications.

COMMENT ON INDICATIONS

The presence of stones in the common duct leads to changes of varying degree. Jaundice and dilatation of the common bile duct are primarily due to the obstruction of the flow of bile. It has been noted, however, that previous cholecystectomy or complete loss of function in the markedly fibrotic, contracted gallbladder will lead to dilatation of the common duct in many instances.¹⁰

With obstruction to the flow of bile, cholangitis often develops, causing chills and fever clinically, thickening and edema of the walls of the common duct, and further damage to the gallbladder. Cholangitis also favors further increase in the size of stones in the common duct, and is certainly a factor in the so-called re-formed stones that originate within the duct.

The relationship of pancreatitis to choledocholithiasis and cholangitis has been observed repeatedly. The relative importance of these latter conditions in the pathogenesis of pancreatitis continues to be controversial. Exploration of the common duct is felt to be indicated in cholelithiasis patients in whom pancreatitis is noted at exploration, not only to rule out and correct any obstruction at the ampulla but also to establish drainage of the common duct if the inflammatory process is marked.

Needle aspiration of bile from the common duct is a useful procedure in the evaluation of possible cholangitis.¹¹ Cloudy or turbid sediment-containing bile indicates the presence of cholangitis and obstruction, which is most commonly due to stones in cholelithiasis patients.

Cholangitis may occasionally be present in the absence of obstruction sufficient to cause dilatation of the common duct. Two such cases are represented by the last two items in table 3. A clinical diagnosis of cholangitis or the findings on aspiration of the common duct are thus important occasional indications for choledochotomy.

Indications that remain for discussion include the obvious finding of palpable stones in the common duct. Negative findings on palpation do not of course completely rule out the presence of stones, although mobilization of the duodenum will facilitate more accurate palpation of the terminal portion of the duct in the difficult case.

The presence of small stones in the gallbladder is a questionable, though occasionally helpful, indication. Buxton and Burk found stones in only one duct opened on this indication alone,¹² while stones were found in four

instances on this basis alone in our cases. Dilatation of the cystic duct or the presence of other suggestive factors strengthens this indication greatly. We had no cases in which stones were found on the basis of a contracted gallbladder alone, an experience similar to that of others.¹³

The common duct was normal on inspection and palpation in 26 choledocholithiasis patients (15%). The size of the stones removed from these ducts was reviewed in order to rule out the possibility that stones in such ducts might be small, asymptomatic, and likely to be passed into the duodenum. In only 5 of the 26 were the stones described as minute in size or stony debris; they were multiple in all cases. In 15 of the 26 there were multiple stones and in 6, single stones of average (0.5 cm.) to large size. In eight of these cases the stones were of sufficient size to be palpable but had caused no discernible changes in the duct.

The stones removed from the common duct in the entire series of 175 patients were of moderate to large size in 159 and of very small size in 16 patients. The incidence of colic and jaundice in the latter group of patients

TABLE 4.—Number of Cases in Which Two Indications for Choledochotomy Were Noted

Pair of Indications	No. of Cases
Jaundice, plus dilated common bile duct.....	42
Jaundice, plus palpable stones in common bile duct.....	7
Palpable stones in dilated common bile duct.....	8
Small stones in gallbladder, plus dilated common bile duct...	4
Empty gallbladder with biliary colic, plus dilated common bile duct.....	3
Small stones in gallbladder, plus jaundice.....	2
Very frequent colics, plus jaundice.....	1
Recurrent biliary colic after cholecystectomy, plus dilated common bile duct.....	1
Recurrent biliary colic after cholecystectomy, plus jaundice..	1
Pancreatitis plus dilated common bile duct.....	1
Total.....	70

differed from that of the series as a whole. Colic was present in 13, jaundice in only 4 patients, with both symptoms being present in only 3 of the 16 patients. Neither symptom had been present in two cases.

The operative mortality rate in 175 positive explorations of the common duct was 3.4%. Five of the six deaths occurred between 1940 and 1945. Three were primarily cardiac deaths in patients with preexistent cardiovascular disease. Glenn has also recently reported a relative increase in cardiac deaths as infection becomes less of a problem.¹⁴ Four of the patients had had previous biliary operative procedures, and four were jaundiced on admission or previously. The ages of the patients who died ranged from 41 to 80 years. The mortality was higher in men (3 in 67, or 4.5%) than in women (3 in 108, or 2.8%), as noted in previous reports.^{2d}

SUMMARY AND CONCLUSIONS

The records of 175 patients who had stones removed from the common duct by one of us (J. M. W.) are reviewed. The symptoms noted in this group included

10. (a) Benson, K. W.: Dilatation of Bile Ducts and Its Relation to Distress After Cholecystectomy, *Am. J. Digest. Dis.* 7: 1-2 (Jan.) 1940.
(b) Womack, N. A., and Crider, R. L.: Persistence of Symptoms Following Cholecystectomy, *Ann. Surg.* 126: 31-55 (July) 1947.

11. Colcock.^{10b} O'Shea.^{10b} Womack and Crider.^{10b}

biliary colic in 79%, jaundice in 65%, nausea and vomiting in approximately 75%, and chills or fever or both in approximately 49%. Some degree of pancreatitis was present in 32% of the patients. The indications for exploration of the common duct are summarized for this group of patients and discussed individually. The pathogenesis and rationale of certain of the less frequent indications are stressed.

Common duct exploration should be carried out in association with cholecystectomy whenever any suspicion of the presence of stones in the common duct

arises in the form of one or more of the indications discussed. Further reduction in the mortality associated with common duct stones and their removal rests on the careful evaluation of results following choledochotomy in patients operated on for biliary tract disease or pancreatitis. Careful and thorough exploration of the common bile duct, with removal of all of the stones therein at the initial operation, would minimize the duration of changes such as obstruction, cholangitis, and progressive hepatic damage that cause secondary procedures to be associated with an increased risk.

EXPERIENCE WITH ELECTROSURGICAL OBLITERATION OF THE GALLBLADDER

Max Thorek, M.D., Chicago

In 1933 the prevailing high mortality following operations on the gallbladder in unselected cases was 9.6%. While it is true that in selected cases without complications the mortality from removal of the gallbladder in experienced hands is around 1 or 2%, a mortality of around 10% is obviously excessive. A reduction of this mortality incidence is the objective of this paper.

The postoperative complications that arise after scalpel cholecystectomy with drainage include unavoidable seepage of bile, which acts as a poison in the peritoneal cavity; thrombosis and embolism induced by bile escaping into the peritoneal cavity; erosion of blood vessels with subsequent hemorrhage; the creation of atriums for the entrance of infectious micro-organisms; and, in the older persons particularly, acute dilatation of the stomach, biliary fistulas, and pneumonia. Theoretically, when doing a classic cholecystectomy, the surgeon covers the denuded surface of the gallbladder bed with peritoneum. Unfortunately, even the most skillful and experienced surgeon cannot always accomplish this, and a large deep open wound in the gallbladder bed is often the result.

After considering this problem for some time, I concluded that leaving the posterior gallbladder wall attached to its gallbladder bed and converting the former into an inert sterile tissue tampon might be a solution to the problem. Much experimental work followed. Electrocoagulation of the posterior wall, instead of the use of a scalpel for removal of the gallbladder, and substitution of a dry nonleaking surface for the usual discharging cavity was the result. Capillaries and blood vessels of an electrocoagulated area do not thrombose; instead, a recession of the column of blood, above and below the point of contact of the electrode, takes place within the blood vessel; the vessel walls coalesce with the contiguous, homogenous, hyaline-like structures.

Since there exists some confusion and lack of distinction between the terms cauterization, electrocoagulation, fulguration, and carbonization a note of explanation is in order. The firm application of an electrode of bipolar current to a tissue surface, with a current of proper voltage and sufficient amperage permitted to pass through it, will, in a few seconds, dehydrate and coagulate the pro-

teins within that tissue and turn it white. This is electrocoagulation. If, however, this same electrode is not very firmly applied or if a unipolar or even a bipolar apparatus is used in its place, a minute air space, technically designated as a dielectricum, will intervene between the electrode and the tissue being treated. This causes sparking, with fulguration and carbonization, and cauterization is the result. The tissues will become blackened (carbonized) instead of white. If the electrode is again applied to such a carbonized tissue surface, the current will not penetrate further, so that coagulation of the underlying tissues will be impossible (fig. 1).

In cauterization, the instrument brings the heat to the tissues from the outside. In electrocoagulation, the heat is generated within the patient's body. Cauterized tissues slough. Tissues electrocoagulated inside the abdominal cavity are not thrown off or extruded as they would be from the body's external surface. Electrocoagulated surfaces within the abdomen develop "positive chemotaxis"; they attract any contiguous tissues covered with serosa (omentum, stomach, and bowels); electrocoagulated tissue becomes encapsulated and is ultimately absorbed. Firm union between the coagulated gallbladder bed and the surrounding tissues is the result.

Again, electrocoagulation of the posterior gallbladder wall and the gallbladder bed serves to prevent secondary hemorrhage because of the pressure exerted by the coagulated tissue tampon on the gallbladder bed structures. In other words, a secure sterile tampon covers the gallbladder bed, instead of the insecure open cavity that remains after classic cholecystectomy. This is the basic principle of what has now come to be known as electrosurgical obliteration of the gallbladder. During the more than two decades that have elapsed since I first reported this technique, a number of surgeons have described the use of electrosurgery in gallbladder operations. Without exception, however, their procedures have involved cauterization or fulguration, not electrocoagulation.

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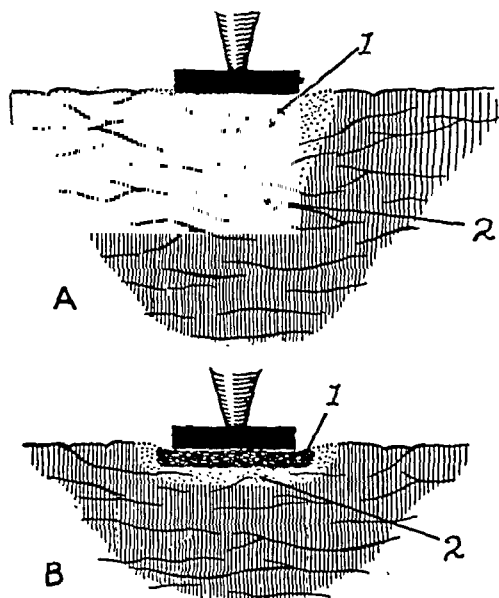


Fig. 1.—Diagram showing effects of electrocoagulation and of carbonization. In *A* the degree and extent of electrocoagulation when correct technique is used is shown; 1, indicates area in which action is of greatest intensity and 2, marginal action extends for some distance from the border of the electrode. *B*, when improperly used, charring results immediately under the electrode. Such eschar insulates the area, and further effects of coagulation are frustrated; 1, d. electricum and 2, limitation of action (published with permission of J. B. Lippincott Company).

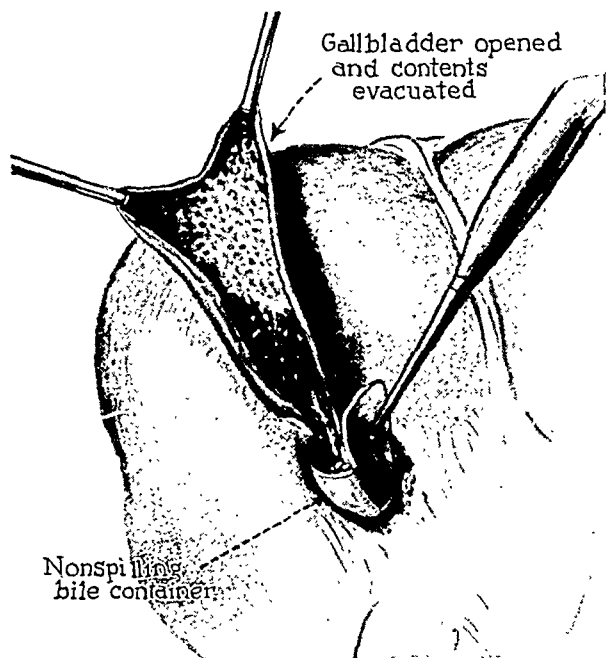


Fig. 2.—The gallbladder has been split open from fundus to cystic duct, and the contents have been evacuated. Nonspilling bile container shown in use (published with permission of J. B. Lippincott Company).

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even embolism. Moreover, incomplete destruction of the gallbladder wall leaves micro-organisms dormant in the Rokitansky-Aschoff sinuses.

About 5,000 cases of electrosurgical obliteration of the gallbladder garnered from the literature and my own practice in the last 23 years showed a reduction of morbidity and mortality in unselected cases and all ages to about one-third of 1%.

TECHNIQUE

With the patient under subarachnoid block, or other suitable anesthetic, and placed in the Mayo-Robson position, a thick pad is placed between the loins, and the lower thorax and upper abdomen are elevated to the desired degree of lordosis. A large, flat, indifferent electrode is applied snugly over the patient's sacrum. A straight paramedian incision is made, extending longitudinally

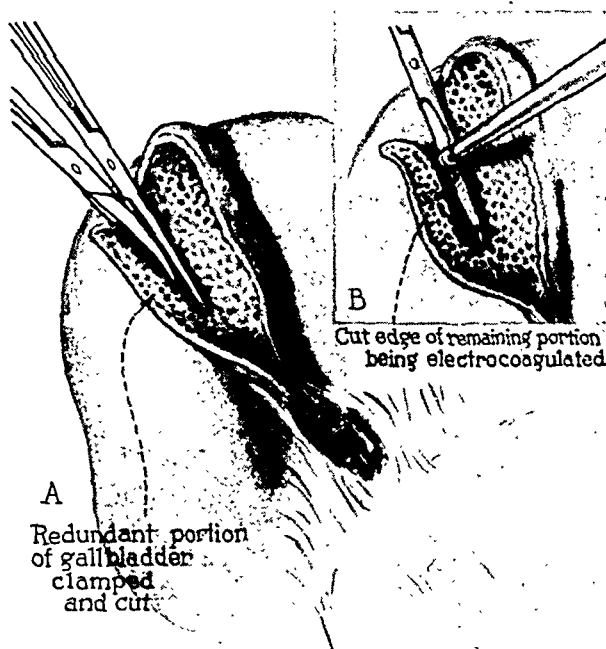


Fig. 3.—*A*, redundant gallbladder portion clamped with ordinary Kocher artery forceps and removed with scissors and, *B*, cut edge of remaining portion of the gallbladder wall held in clamp and electrocoagulated (published with permission of J. B. Lippincott Company).

from the lower costal margin to the level of the umbilicus, or lower, if need be. A segment of omentum is detached and placed in a receptacle containing warm isotonic sodium chloride solution. All severed blood vessels in the omentum are carefully ligated, adjacent viscera are packed away from the operative field, and adequate exposure is assured.

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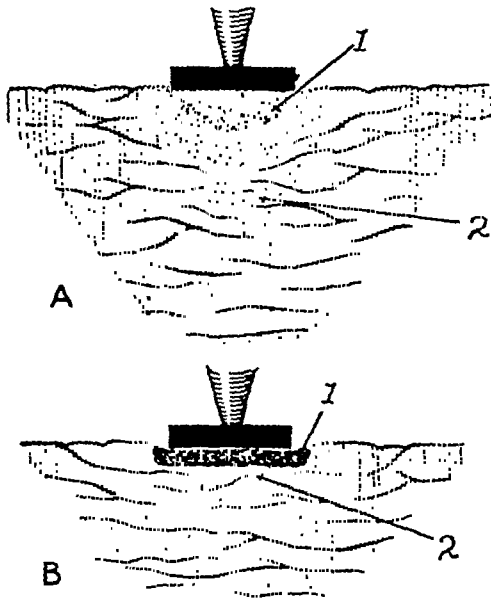


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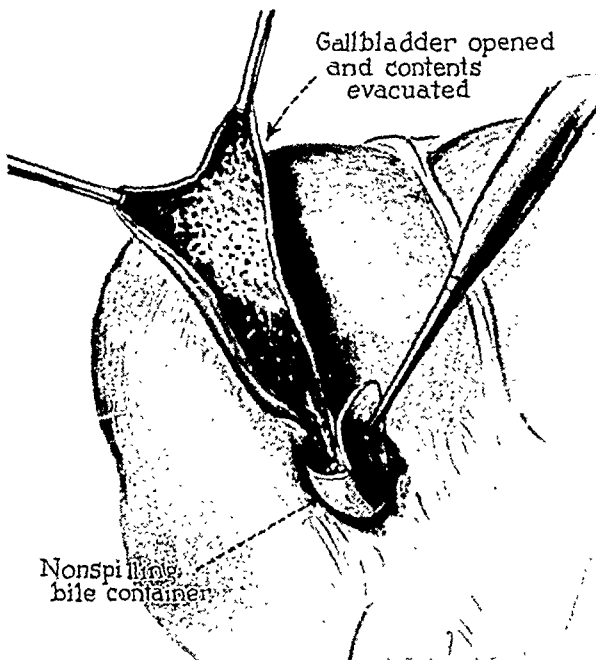


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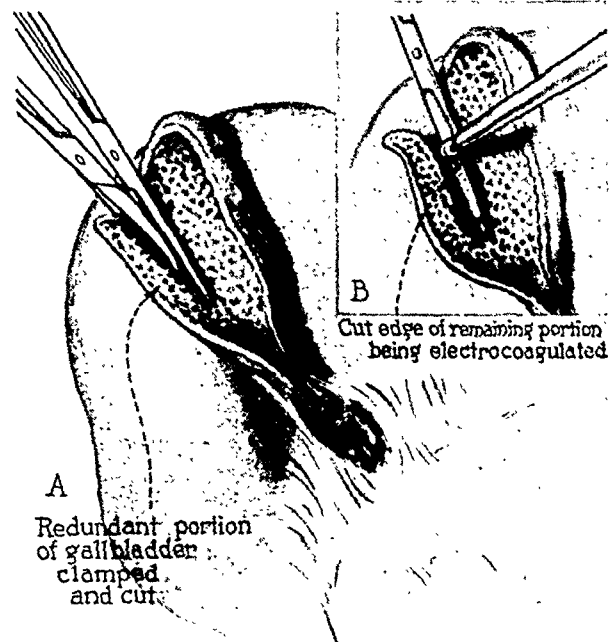


Fig. 3.—*A*, redundant gallbladder portion clamped with ordinary Kocher artery forceps and removed with scissors and *B*, cut edge of remaining portion of the gallbladder wall held in clamp and electrocoagulated (published with permission of J. B. Lippincott Company).

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grasped with a Kocher artery forceps (straight or curved). Closing the forceps crushes the gallbladder wall and closes the blood vessels. The redundant portion of the gallbladder wall is then cut away with scissors. The procedure is repeated on the opposite side. Now only the posterior wall of the gallbladder remains attached to the gallbladder bed (fig. 3).

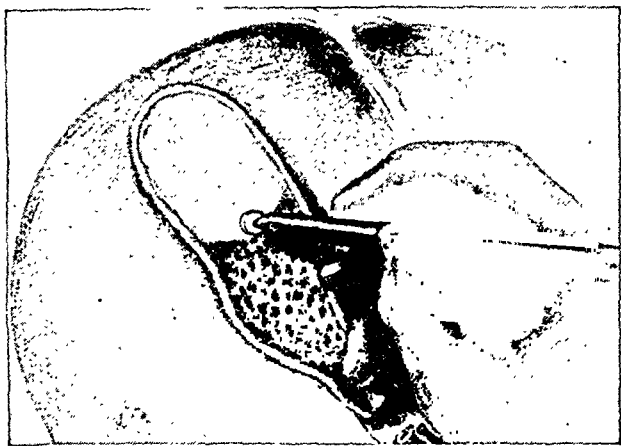


Fig. 4.—Electrocoagulation of posterior wall of gallbladder (published with permission of J. B. Lippincott Company).

A small electrode is now firmly applied to the exposed posterior wall of the gallbladder attached to its bed. The smaller the electrode, the quicker its action; the current will coagulate to any desired depth. The electrode should always be applied snugly to the gallbladder wall to avoid carbonization. A well-coagulated area will



Fig. 5.—Electrocoagulated edges of remaining portion of gallbladder united with interrupted sutures over which a detached portion of omentum on the falciform ligament is superimposed (published with permission of J. B. Lippincott Company).

result (fig. 4). The remaining electrocoagulated edges of the gallbladder are approximated by interrupted or continuous sutures (fig. 5). After this is done, the segment of omentum that was laid out for this purpose before the beginning of the operation is sutured over the coagulated gallbladder bed. One

suture above and one below usually suffices. An effective serous covering is thus provided for the gallbladder bed; the operated area is now securely protected against seepage (fig. 6). Satisfactory healing ensues with final encapsulation and resorption. Drainage is unnecessary and is omitted.

SUMMARY AND CONCLUSIONS

The mortality following the classic cholecystectomy in unselected cases remains high (around 10%) despite the introduction of many new surgical safeguards. In order to reduce morbidity and mortality, a method of electrocoagulation of the posterior gallbladder wall was evolved to replace the classic scalpel removal of the gallbladder. This substitutes a dry, nonleaking surface for the discharging cavity remaining after classic cholecystectomy and reduces morbidity and mortality drastically.

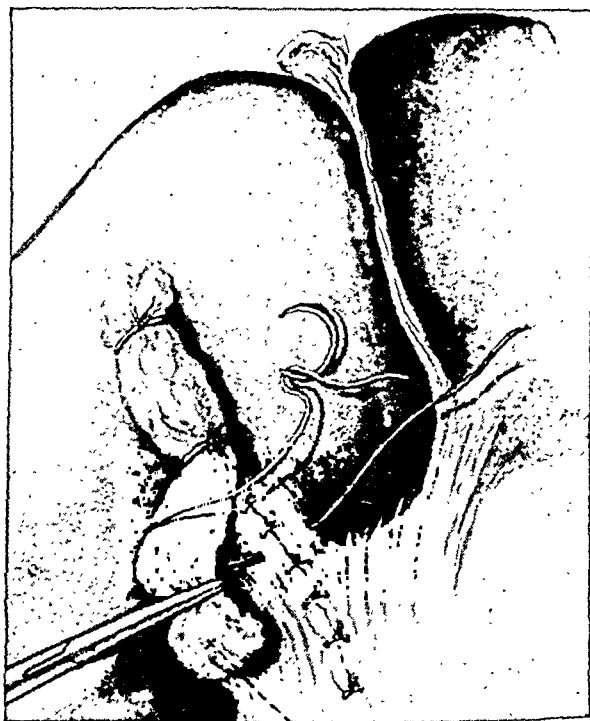


Fig. 6.—Free segment of omentum used to cover electrocoagulated area (published with permission of J. B. Lippincott Company).

Electrocoagulation is differentiated from fulguration, carbonization, and cauterization with which it is confused. The aim of the operation described is not to cauterize, but to coagulate, to penetrate deeply, not to crust the surface with a charred eschar, and to eliminate the diseased gallbladder tissue completely and thereby leave no foci of infection in the depth of the glands or danger from hemorrhage from incompletely closed blood vessels, leakage of bile, and open atriums for ingress of infectious matter. The present relatively high mortality following cholecystectomy in unselected cases can be greatly reduced, the morbidity curtailed, and the safety of the operation for elderly and debilitated patients much increased by employing the procedure outlined, electrocoagulation, in place of the classic scalpel technique.

850 W. Irving Park Rd. (13).

POLYCYSTIC KIDNEY DISEASE AND INTRACRANIAL ANEURYSM

Eugene F. Poutasse, M.D., W. James Gardner, M.D.

and

Lawrence J. McCormack, M.D., Cleveland

Congenital anomalies are often multiple and tend to occur in certain combinations. Polycystic kidney disease is frequently found with anomalies involving other organs of the body, such as cysts of the liver or pancreas. An association reported a number of times, but not given much clinical emphasis, is that of polycystic kidney disease and aneurysm of the circle of Willis. The reports of this combination have appeared mainly as necropsy findings,¹ the patients dying either of subarachnoid hemorrhage from rupture of the aneurysm or of renal failure from polycystic kidney disease. Recognition of the combination prior to death has been unusual, but, with present roentgenologic techniques, the diagnosis can be established and definitive treatment instituted after the appearance of symptoms.

During the past two years, three patients have been seen at the Cleveland Clinic with congenital aneurysm of a cerebral artery and polycystic kidney disease. All three were relatively young and entered the hospital because of symptoms of subarachnoid hemorrhage. The first patient of the series died shortly after admission to the hospital in August, 1950, of a massive intracerebral hemorrhage. His history, although brief, is typical of the majority reported in the literature.

REPORT OF CASES

CASE 1.—A 29-year-old man experienced a severe headache behind the bridge of his nose followed by a generalized convulsion one week prior to entry. Four similar episodes occurred during the next few days, accompanied on one occasion by stiffness of his neck and vomiting. His previous health had been excellent, and there was no family history of kidney disease. Physical examination revealed a temperature of 100.5 F, pulse rate 110, respirations 25, and blood pressure 128/75 mm. Hg. At the time of entry he complained of severe headache but was amnesic concerning his illness. Nuchal rigidity was present. Shortly after admission to the hospital he had a generalized convulsion with opisthotonos. Lumbar puncture revealed bloody spinal fluid with a pressure of 350 mm. H₂O. A few hours later the patient lapsed into coma and died.

At necropsy polycystic kidneys were found, the right weighing 287 gm. and the left 247 gm. Examination of the circle of Willis showed a small "berry" aneurysm arising from the junction of the anterior communicating and left anterior cerebral arteries. The tip of the aneurysm had ruptured (fig. 1). From this point of rupture a dissecting hemorrhage passed through the right frontal lobe and basal ganglia into the right lateral ventricle and filled the ventricular system. A large zone of encephalomalacia surrounded the hematoma. The obvious symptoms of subarachnoid hemorrhage in this case suggested the diagnosis of berry aneurysm. There was no clue in his history or physical examination of congenital polycystic kidney disease.

CASE 2.—This patient, a 27-year-old man, was not known to have either anomaly prior to hospitalization, although he had had high blood pressure for several years and a family history of kidney disease. He entered the hospital in September, 1952, because of headaches and vomiting. Nine days previously a severe, generalized, throbbing headache with vomiting had suddenly developed. His physician found a blood pressure of 180/130 mm. Hg and a stiff neck. Lumbar puncture disclosed bloody spinal fluid with increased pressure. The history

revealed that in 1944, eight years prior to entry, he was rejected by his draft board because of hypertension. In recent years he had experienced several episodes of headache and vomiting, but none of the intensity that led to his hospitalization. He had no history of renal disease, but his father had died of renal disease and his only brother was known to have it.

Positive physical findings consisted of blood pressure of 210/140 mm Hg, constriction of the optic vessels, and a palpably enlarged left kidney. Urinalysis showed a trace of albumin and both red and white blood cells. The blood urea level was 21 mg. per 100 ml. A plain roentgenogram of the abdomen showed a normal right renal outline, but the left was enlarged. On intravenous urography both kidneys functioned well, and the right renal pelvis and calices appeared normal. There was elongation of all the calices of the left kidney, with some widening and distortion. It was believed that the patient had polycystic kidney disease and that the subarachnoid hemorrhage was probably from a congenital aneurysm of the circle of Willis.

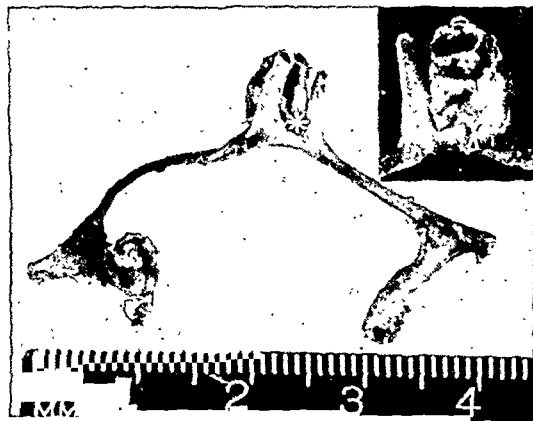


Fig. 1 (case 1).—Congenital berry aneurysm of the circle of Willis arising from the junction of the anterior communicating and left anterior cerebral artery. An asterisk marks the neck of the sac. The inset shows the sac and point of rupture.

Retrograde pyelograms confirmed the previous findings in the left kidney and also demonstrated suggestive changes of polycystic disease in the right kidney (fig. 2). A few hours after cystoscopy the patient suddenly became unconscious, and no blood pressure was obtainable. He had dilated fixed pupils, respiratory failure, and bilateral Babinski responses. Artificial respiration was started, and the blood pressure was supported with phenylephrine (Neo-Synephrine) hydrochloride infusion. Lumbar puncture revealed clear fluid with a pressure of 110 mm. H₂O. Immediate, bilateral, internal carotid arteriograms were carried out, but the dye did not pass beyond the level of the sella turcica. Exploratory trephination was performed, and a hematoma was evacuated from the right frontal lobe. The patient's condition did not improve, and life was maintained for only a few hours by the respirator.

At necropsy bilateral polycystic kidneys were found, the left being twice the size of the right (fig. 3). A congenital aneurysm

From the Cleveland Clinic and the E. E. Potts Educational Institute.

1. Forster, F. M., and Alpers, J.: Aneurysm of Circle of Willis Associated with Congenital Polycystic Kidney Disease. *Ann. N.Y. Acad. Sci. & Psychiat.* 50: 669, 1952. E. E. Potts Educational Institute, Cleveland, H. S. Association of Diseases of Kidneys and Aneurysms of Cerebral Arteries. *J. Surg.* 42: 3-9 (Sept.) 1939.

of the right middle cerebral artery had ruptured; the resulting hemorrhage had dissected through the cerebral substance into the right lateral ventricle. Focal necrosis of the pons and mid-brain was present. Histological sections of the aneurysm showed the wall to be of variable thickness and composed of fibrous tissue only. A focus of necrosis was present at the site of rupture.



Fig. 2 (case 2).—Retrograde pyelogram showing enlargement of left kidney with elongation, widening, and distortion of all calices. Right kidney shows only minimal roentgenographic changes.

CASE 3.—This patient, a 40-year-old woman, was known to have symptomatic polycystic renal disease for one year before symptoms of the intracranial aneurysm appeared. She was seen in July, 1951, with gross hematuria, right flank pain, and fever. There was no family history of kidney disease. On examination her blood pressure was 130/65 mm. Hg, and large tender masses were felt in both flanks. The urine contained many red and white blood cells, but culture was sterile. The blood urea was 24 mg. per 100 ml. Roentgenographic studies showed enlarged renal outlines, with elongation and distortion of all calices characteristic of polycystic kidney disease (fig. 4). Translumbar aortography demonstrated distortion of the renal arterial system corresponding to the caliceal distortion. With bed rest and antibiotics she recovered from the bleeding and infection and returned to her home.

A year later she experienced sudden, severe, transient headache associated with stiffness of the neck. Two weeks later she had a generalized convulsion followed by right hemiparesis and aphasia. On this occasion, a lumbar puncture disclosed bloody spinal fluid under high pressure. On arrival at the hospital she was found to have a stiff neck, right hemiparesis, and a dilated right pupil. The blood pressure was 130/95 mm. Hg; the blood urea level was 24 mg. per 100 ml., and the urine contained only

a few white blood cells. Three days after entry a sudden headache developed, with temporary respiratory arrest and coma. A week later a left carotid arteriogram showed a small aneurysm on the medial aspect of the internal carotid artery just below its bifurcation. There was dislocation of the anterior cerebral artery indicating an intracerebral clot (fig. 5). With the patient under thiopental (Pentothal) and hypotensive spinal anesthesia, a left frontal craniotomy was performed and a hematoma was aspirated from deep within the frontal lobe. The aneurysm was found lying on the optic nerve. A silver clip was placed across the base of the aneurysm, leaving the cerebral circulation intact.

The patient gradually regained her speech and use of her right side, but partial amnesia for the two year period prior to operation was still present one year later. Although she has polycystic kidneys, their function is apparently adequate to maintain good health, as her blood urea level has remained normal and the urea clearance test shows 75% of normal function. Because of the abundance of symptoms, signs, and roentgenographic findings, it was not difficult to establish a diagnosis of polycystic kidney disease and congenital aneurysm in this patient.

COMMENT

The majority of intracranial aneurysms are believed to be of congenital origin and are distinctly saccular in shape.² They are known as "berry" aneurysms because of their shape and smooth, dark coats.³ They most frequently appear at or near the bifurcation of the larger cerebral arteries, occurring four times as often in the anterior half as in the posterior half of the circle of Willis. Congenital aneurysms are usually single but may be multiple. The origin of these berry aneurysms is not definitely known; they may develop because of congenital defects of the media, with thinning out of the elastica,⁴ or because of persistent remnants of the embryonic capillary network.⁵ The former mechanism is favored. The arteriosclerotic aneurysm is much less common and



Fig. 3 (case 2).—Both kidneys are studded with cysts, the left weighing 560 gm., the right 230 gm.

2. (a) Dandy, W. E.: *Intracranial Arterial Aneurysms*, Ithaca, N. Y., Comstock Publishing Co., Inc., 1944. (b) Hamby, W. B.: *Intracranial Aneurysms*, Springfield, Ill., Charles C Thomas, Publisher, 1952.

3. Collier, J.: Cerebral Haemorrhage Due to Other Causes Than Arteriosclerosis, *Brit. M. J.* 2: 519-521 (Sept. 19) 1931.

4. Forstus, W. D.: On Origin of Miliary Aneurysms of Superficial Cerebral Arteries, *Bull. Johns Hopkins Hosp.* 47: 239-285 (Nov.) 1930.

5. Bremer, J. I.: Congenital Aneurysms of Cerebral Arteries: Embryologic Study, *Arch. Path.* 35: 818-831 (June) 1943.

6. Courville, C. B.: *Pathology of the Central Nervous System*, Mountain View, Calif., Pacific Press Publishing Association, 1937.

is usually a fusiform dilatation of one of the major vessels of the circle of Willis.⁶ Various degrees of arteriosclerosis are usually evident in its walls.

Polycystic kidney disease is known to be congenital in origin and consists of an extensive involvement of the parenchyma of both kidneys by cysts of varying sizes. It can be recognized in newborn infants, but it usually be-

comes evident in the middle decades. There is a definite tendency for this malformation to be familial, although isolated cases may appear. This familial tendency is of diagnostic aid. An excellent description of both the infantile and the adult type is presented by Lambert.⁷

In 1951, Brown⁸ summarized the previous reports of patients who had the combination of polycystic kidneys and intracranial aneurysm; to these he added seven other patients, one of whom was suspected of having the coexisting anomalies before death. In 11,245 autopsies, he found 36 cases (0.32%) of polycystic kidneys and 148 cases (1.3%) of cerebral aneurysms. Six patients were discovered to have both anomalies, the relationship being present in 4% of cases of intracranial aneurysm and in 16.6% of cases of polycystic kidney disease. These six patients died of subarachnoid hemorrhage from or associated with aneurysms. Unfortunately, the brain was examined in only 16 of the 36 patients with polycystic kidneys. Brown concluded that the two anomalies are associated more frequently than would occur by chance. He believed the two anomalies have a common etiology and are of congenital origin. Two earlier reports are also pertinent. Suter⁹ in 1949 reviewed 5,960 autopsies and found 23 cases of ruptured congenital aneurysm and 4 that were unruptured. In the same series were five cases of polycystic kidney disease, and two of these patients had died of ruptured intracranial aneurysm. Sahs¹⁰ in 1950 reported 60 cases of intracranial aneurysms verified by necropsy and found 4 instances of associated polycystic kidneys.

Since Brown's report, Hamby^{2b} reviewed his experience with 86 patients who had proved aneurysms, 3 of whom had polycystic kidneys. Bigelow¹¹ also describes three patients who had the combination of anomalies. The reported total of patients in whom these anomalies are known or probably coexist is 44, to which



Fig. 4 (case 3).—A, enlarged renal outlines with elongation, widening, and distortion of all calices characteristic of polycystic kidney disease. B, translumbar aortogram. Note that arterial system spreads out evenly over each kidney.

we are adding 3. One of our patients is the first with this combination of conditions to have undergone successful surgical correction of the aneurysm. Bigelow presents statistics from the Albany Hospital that compare closely with those of Brown. In 8,892 necropsies, 47 cases of congenital berry aneurysm were found, in 3 of which polycystic kidneys were also found (6.4%).

Three patients of 18 with polycystic kidneys had intracranial aneurysms (16.6%).

It is noteworthy that most of these reports indicate that the patients with the combined anomalies die from rupture of the intracranial aneurysm and that the polycystic kidney disease is frequently an incidental finding

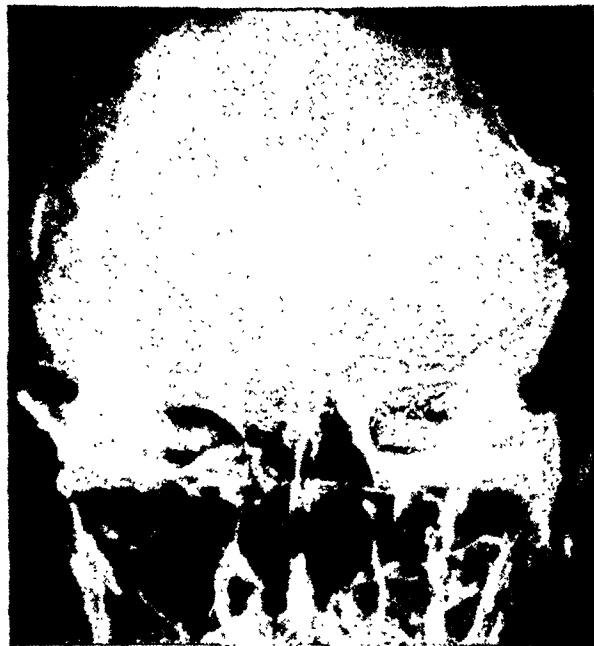


Fig. 5 (case 3).—Cerebral angiogram showing small aneurysm arising from the medial aspect of internal carotid artery below its bifurcation. The anterior cerebral artery is pushed beyond midline indicating an associated intracerebral hematoma.

at autopsy. Relatively few died of renal failure with an unruptured congenital aneurysm being found at examination of the brain. In Brown's report, 8 (22.4%) of the 36 patients with polycystic kidneys died of subarachnoid hemorrhage. Bell,¹² on the other hand, states that the incidence of cerebral hemorrhage in patients with polycystic kidney disease is so low that it may be regarded as an independent disease. At the Cleveland Clinic¹³ there have been 94 patients with polycystic kidney disease, 15 of whom are known to have died. The majority of the fatalities were caused by renal failure. Five have come to necropsy here: two of these died of hemorrhage from ruptured intracranial aneurysm; one died of renal failure and was found to have a fusiform dilatation of the junction between right anterior artery and anterior communicating artery; and two others died presumably of renal failure, but permission for examination of the brain was not granted.

7. Lambert, P. P.: Polycystic Disease of Kidney. Review, Arch. Path. 44: 34-58, 1947.

8. Brown, R. A. P.: Polycystic Disease of Kidneys and Intracranial Aneurysms. Etiology and Interrelationship of These Conditions: Review of Recent Literature and Report of Seven Cases in Which Both Conditions Coexisted, Glasgow M. J. 32: 333-348 (Dec.) 1951.

9. Suter, W.: Das kongenitale Aneurysma der basalen Gehirnarterien und Cystenieren, Schweiz. med. Wchnschr. 79: 471-476 (May 28) 1949.

10. Sahs, A. L.: Intracranial Aneurysms and Polycystic Kidneys, Society Transactions, Arch. Neurol. & Psychiat. 43: 524 (March) 1950.

11. Bigelow, N. K.: Association of Polycystic Kidneys with Intracranial Aneurysms and Other Related Disorders, Am. J. M. Sc. 235: 485-494 (May) 1953.

12. Bell, E. T.: Renal Disease, ed. 2, Philadelphia, Lea & Febiger, 1950.

13. Higgins, C. C.: Bilateral Polycystic Kidney Disease: Report of 94 Cases, Arch. Surg. 65: 318-329 (Aug.) 1952.

It is interesting to compare the relationship of intracranial aneurysm to polycystic disease and coarctation of the aorta. The incidence of polycystic renal disease from combined autopsy statistics reported by Bell¹² is 1 in 351. The incidence of coarctation of the aorta from autopsy records as reported by Reifenstein¹⁴ is 1 in 3,000; of 104 cases of coarctation of the aorta, 5 (4.8%) had ruptured intracranial aneurysm. Wright¹⁵ collected 304 cases of coarctation of the aorta and found that 16 had intracranial aneurysm (5.2%). The association of polycystic kidneys with berry aneurysm appears to be commoner (16%) on the basis of autopsy series previously mentioned.

SUMMARY AND CONCLUSIONS

Three patients with the combination of congenital intracranial aneurysm and polycystic kidneys are reported on, making a total of 47 such cases in the literature. The association of these two congenital anomalies appears to be commoner than is generally realized. One of our patients (case 3) with the combination of anomalies, in whom the diagnosis of bleeding intracranial aneurysm was established, successfully underwent surgical correction of the aneurysm. Patients known to have polycystic kidneys who manifest migraine headache or symptoms of cerebrovascular accident should be promptly investigated if intracranial aneurysms are to be discovered in time to offer a chance for survival from hemorrhage. This is especially true in those who have a favorable life expectancy in terms of renal reserve.

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14. Reifenstein, G. H.; Levine, S. A., and Gross, R. E.: Coarctation of the Aorta: Review of 104 Autopsied Cases of "Adult Type," 2 Years of Age or Older, *Am. Heart J.* 33: 146-168 (Feb.) 1947.

15. Wright, C. J. E.: Coarctation of the Aorta with Death from Rupture of a Cerebral Aneurysm, *Arch. Path.* 48: 382-386 (Nov.) 1949.

The General Practitioner and Mental Hygiene.—There are influences bearing upon every individual as he grows and develops, probably most significantly during infancy and childhood, though personality maturation does not cease at adolescence. The practitioner and the health officer will need to be concerned, both in the treatment and the prevention of personality disorders, with cultural pressures on the individual, both as felt in the community and as transmitted from generation to generation. The material used in personality structure is not complicated—it consists of the homely things of everyday life and of the individual's reactions to them. There is much still to be understood about how that marvel of complexity yet efficiency, the human nervous system, combines and integrates experiences, but it does so by conscious and unconscious memories that make the personality of the moment interpretable in terms of past experiences. In the diagnosis and treatment of patients who have functional disorders, with or without organic disease, these building stones of personality will have to be examined, the data being obtained from the original and exclusive source—the patient. Prevention of many personality disorders will consist in attempts to insure the maintenance of healthy, appreciative attitudes between children and their parents and those who stand *in loco parentis* from time to time. Dealing with these matters enhances the satisfaction of the practitioner and can result in the alleviation of psychiatric symptoms. In the prevention of personality breakdown, P. J. P. M.D., *The Role of the Private Practitioner and the Health Officer in Mental Health Problems*, *North American Journal*, November, 1953.

CLINICAL NOTES

USE OF HYALURONIDASE TO PREVENT URINARY CALCULI

REPORT OF A CASE IN WHICH STONE RECURRENCE WAS FACILITATED BY HYALURONIDASE THERAPY

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In 1951 Butt¹ reported clearance of turbidity of the urine of persons predisposed to calculus formation after the subcutaneous injection of the enzyme hyaluronidase. In 1952 the same author,² in association with Hauser and Seifter, published further studies on the mechanism of this phenomenon and also reported its use in the prevention of recurrence of urinary calculi. It was stated that the subcutaneous injection of hyaluronidase results in the release of hyaluronic acid from the subcutaneous connective tissues and its excretion in the urine in a degraded or hydrolyzed form in which the individual particles act as protective colloids. The protective colloid "not only disperses crystalline matter already present but also inhibits the formation and growth of new crystalline matter."²

The importance of the urinary colloids in increasing the solubility of the stone-forming crystalloids has been debated for many years. What the proponents of the colloid theory were able to prove to make their point was quite as convincingly disproved by those who believed that colloids had nothing to do with the matter. Most of the recent workers have concentrated their efforts on the urinary crystalloids in their efforts to prevent stone formation in the urinary tract. The discovery of Butt has shifted attention to the colloids rather than the crystalloids as possible important factors in stone formation and prevention.

The originality of Butt's observation, its apparent plausibility, and the enthusiastic nature of the early clinical reports have resulted in considerable interest among physicians. A glowing and inaccurate report by two staff writers of a popular lay magazine with a very large circulation caught the public eye this past winter, so that patients in whom stones form have been demanding hyaluronidase therapy. Since such therapy involves a preparation (hyaluronidase) that physicians have been using with almost complete impunity to facilitate the spreading and absorption of hypodermoclysis fluids, it is obvious that physicians should be willing to try hyaluronidase for stone prevention without too much consideration, either for its safety or its efficacy. To date I know of no published reports on hyaluronidase therapy for renal calculus except those of Butt and his co-workers.

From Newton-Wellesley Hospital, Newton Lower Falls, Mass.

1. Butt, A. J.: Influence of Protective Urinary Colloids in Prevention of Renal Lithiasis: Preliminary Report, *J. Florida M. A.* 37: 711-713 (May) 1951.

2. Butt, A. J.; Hauser, E. A., and Seifter, J.: Effect of Hyaluronidase on Urine and Its Possible Significance in Renal Lithiasis, *J. A. M. A.* 150: 1096-1098 (Nov. 15) 1952.

This paper is the result of an 18 months' study of the effect of hyaluronidase on the stone-forming crystalloids, both on the basic science and clinical levels, and includes the report of an unfortunate complication resulting from such therapy. The study is consequent on a previous study³ of the crystals of urinary sediments and urinary calculi and of the stone-forming process, in which the structure and composition of calculi, from the standpoint of crystallography, were correlated with the clinical history of patients from whom stone had been obtained. It seems logical to evaluate the effects of hyaluronidase on the previously determined characteristic crystal morphology and related phenomena of the stone-forming process after subcutaneous injection of the enzyme in patients predisposed to calculus formation and in normal persons.

Briefly stated, Butt and associates have found that subcutaneously administered hyaluronidase, mixed with isotonic sodium chloride clears the turbid urine of patients in whom calculi form of sediment for periods of time varying from 24 to 72 hours. It should be stated that the concern here is with the turbidity due to the stone-forming salts only. Turbidity due to blood, pus, bacteria, albumin, and sperm would not be cleared by hyaluronidase, and the presence of these elements may render the test useless. The dosage of the enzyme used varies from 150 turbidity reducing units (TRU) upward, with doses up to 900 TRU or more daily in some cases, depending on how long the urine will be kept free of turbidity by a single dose. For determination of the proper dosage schedule, patients are required to pass specimens of urine at intervals of 1, 2, 4, 8, 16, and 24 hours after injection of a single dose (usually 150 or 300 TRU) and the duration of the clearing effect is noted. When the enzyme is used therapeutically, another dose is given at the proper time interval to keep the urine clear and free of sediment continuously. Complete details of the procedure are contained in the article in *THE JOURNAL*.² Butt has reported that hyaluronidase therapy has been effective in preventing calculus formation during a period of 11 to 21 months in 19 of 24 patients, in whom kidney stones had previously formed at a rapid rate. He has stated that his best results have been obtained in patients with multiple, rapidly recurring calyceal calculi. This type of stone lesion is commonly found in patients in his section of Florida; it is not the commonest stone lesion in patients in the northern part of the United States, however.

In my studies I have found that there is marked variation in the clearing effect on turbid urine after subcutaneous injection of hyaluronidase. Many patients have no clearing at all, and in others it lasts for only a few hours. Usually it lasts from 4 to 12 hours only. In the turbid urines of patients with urea-splitting infection very large dosages may be necessary to produce clearing, as high as 1,500 units twice daily. Often even this dosage fails to clear the urine.⁴

The fundamentals of the action of this enzyme on the urinary crystalloids have been studied optically by a technique devised by Hauser.² Thin films of urine dried on scrupulously clean glass slides are made from the voided urine before injection of the enzyme and at stated intervals after injection until the effect (if any) of the

enzyme has disappeared. The slides are then examined on a special dark-field microscope, called an Ultropak, in which the light comes down from above (instead of up from below as in the conventional dark-field microscope). The effect seen microscopically does not always parallel the gross clearing effect.

SENSITIZATION REACTION

In certain cases (fortunately few) the aggregation of crystals is enhanced and stone formation facilitated by the enzyme. This reaction is known as sensitization in colloid chemistry. The enhanced aggregation of crystals in these cases is said to be due to too small a dose of hyaluronidase. In June, 1952, I saw a patient in consultation in whom this unfortunate mechanism apparently occurred, resulting in loss of a kidney. After a small cystine stone was removed from his left kidney, the 30-year-old white man was given an injection of 150 TRU of hyaluronidase (the contents of one ampul) daily for 10 days, thereafter on alternate days for two months. In addition to the enzyme he also received enough sodium bicarbonate daily to keep his urine alkali-

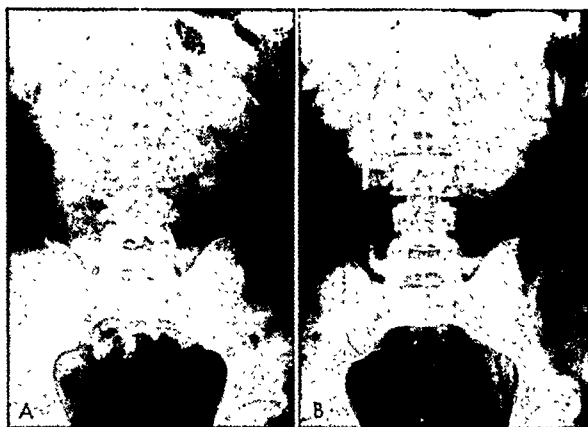


Fig. 1.—A, roentgenogram of the abdomen, showing opaque calculus that fills the pelvis of the left kidney. B, intravenous urogram, several days later, showing good excretion of contrast medium by both kidneys. The left renal pelvis is still occupied by the calculus.

line; this increased the solubility of the cystine and should have retarded stone formation. At the end of the two months' period a roentgenogram of the abdomen was taken, and it showed a calculus of moderate density that filled the pelvis of the left kidney. Intravenous pyelography showed good function of this kidney with the evidence of normal appearing calyces that were filled with the contrast medium (fig. 1). At this time the patient was referred to me, and I thought that the recurrent stone was of calcium phosphate, because it was quite radio-paque and because the patient had been given alkali therapy.

Ultropak microscope studies of urinary films on slides showed the typical sensitization reaction of the enzyme in a dose of 150 TRU. There was no gross clearing effect of the urine with doses up to 600 TRU; the study was

3. Prien, E. L., and Wyeth, J. C. *Uroliths*. I. The Composition of Urinary Calculi. *J. Urol.* 57: 949-953 (June) 1947. Prien, E. L. Studies in the Pathogenesis, Structure and Composition of Urinary Calculi. *J. Urol.* 61: 321-336 (May) 1949. 4. The hyaluronidase study was Wyeth and Co., Inc.

not carried further. The slide in figure 2 shows the typical aggregation of needle-like crystals in sunbursts and in sheaf-like clusters.

A study of the two cystine stones was very illuminating (fig. 3). The first stone, removed before hyaluronidase therapy was instituted, showed the typical cystine stone structure; it was composed of a loose aggregation of typical hexagonal plate-like crystals. The stone, formed during hyaluronidase therapy and removed by

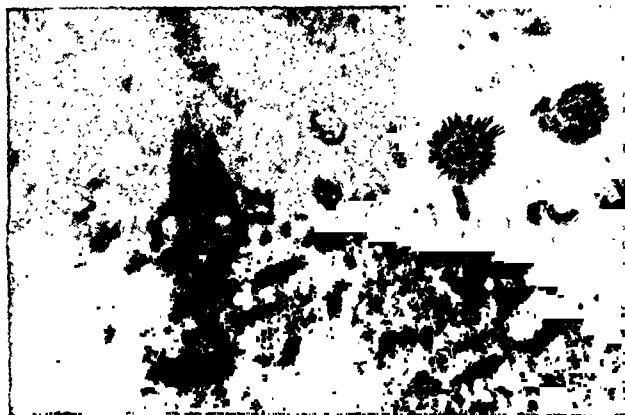


Fig. 2.—Film of urine, dried on glass slide, demonstrating sensitization reaction. Needle-like crystals of cystine in "sunburst" aggregations. Ultropak microscope ($\times 55$) was used.

nephrectomy, completely filled the kidney pelvis and was extremely dense and hard. It was this extreme density that produced the considerable x-ray density in the roentgenogram of the abdomen. (Ordinarily cystine calculi are only slightly radiopaque.) The stone was composed of closely packed microscopic needle-like crystals (spherulites). This type of structure was also seen in the urinary films on the glass slides studied under the Ultropak microscope when the sensitization reaction was manifested. Such a spherulitic growth is commonplace in the field of crystallography and represents an abnormal type of crystallization, produced, in general, by the action of a foreign material added to or present in the crystallizing solution that interferes with the development of the growing crystals. It should be stated that when chemical compounds are allowed to crystallize normally from solution the crystals of each compound assume a definite geometric form characteristic for that compound. This normal crystal form (hexagonal plates) was present in the first calculus only. Absence of such crystals in the second calculus ruled out the possibility that part of the first calculus was allowed to remain in the kidney to serve as a nucleus for the second stone. A personal study of cystine calculi from 158 patients showed no calculi with a similar spherulitic structure. Under the circumstances it seems reasonable to conclude that hyaluronidase may have been responsible for the formation of this large cystine calculus by the sensitization mechanism.

Several other cases are known in which calculus reformation occurred rapidly under hyaluronidase therapy, apparently due to sensitization. Presumably the phenomenon is not limited to calculi composed of cystine. Also, it has been possible to markedly facilitate the aggregation of crystals in the urines of persons who were

not predisposed to calculus formation by administering very small dosages of the enzyme, 15 units (1/10 ampul); presumably this represents sensitization. The frequency with which this reaction is manifested is unknown; probably it is not common. However, no person should receive repeated injections of hyaluronidase to prevent stone if the possibility of this reaction has not been ruled out. Butt² has described in detail how this preliminary test should be done. If turbid urine is rendered clear and free from sediment for a significant period of time by hyaluronidase, it is probable that the sensitization reaction is absent.

All patients in whom stones form do not have a turbid urine. Thus, clearance of turbidity cannot be used to rule out the sensitization reaction in patients with clear urine or to determine the proper dosage schedule. It should be obvious that if clear urine is rendered turbid by hyaluronidase that the sensitization reaction is probably present. Considerable experience is not available, but it is probable that a study of urinary films dried on glass slides as described by Butt should suffice to reveal the presence of the sensitization reaction in clear urine. Such slides may be studied with the ordinary medical microscope. If crystals tend to clump together on a properly prepared urinary film it is possible that the sensitization reaction is being manifested.

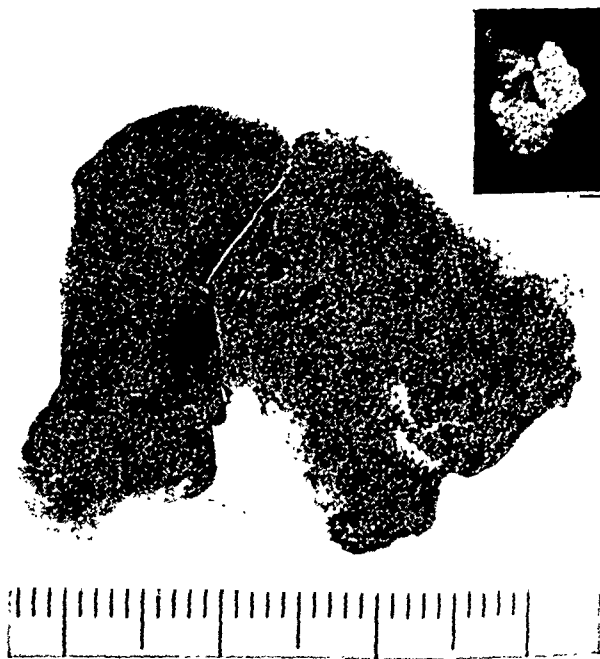


Fig. 3.—Cystine calculus resulting from sensitization reaction due to repeated subcutaneous injections of hyaluronidase. The insert in the upper right corner is cystine calculus removed from same kidney three months prior, before hyaluronidase therapy. The scale is in millimeters.

PROPER DOSAGE SCHEDULE

The determination of the proper dosage schedule in patients with clear urine requires special instruments. A study of urinary films under the Ultropak microscope is of value in such cases and may determine the proper dosage. It is emphasized that the Ultropak microscope is not to be regarded as a tool of utter precision for this purpose. Considerable experience is necessary in the use of this instrument in this almost unknown field in order

that the findings may be properly interpreted. Extreme variations occur in one and the same urinary film; much of this is probably artifactual and occurs in the making and drying of the slide. In the present state of knowledge the purchase of this expensive instrument for a study of this kind is not indicated.

Butt has found that the surface tension of urine is lowered by hyaluronidase, and he has used this phenomenon to set up a dosage schedule. It is possible to determine this effect clinically with a very simple instrument, although the result is only approximately accurate. I have found that hyaluronidase does lower the surface tension of urine, but not in all cases.

COMMENT

In general it appears that the results with hyaluronidase therapy have been unfavorable although some success has also been reported. It takes only a relatively short time for calculi to form but a much longer time to prove that any particular type of therapy has prevented them. The failures become apparent first. It appears that some of the failures may have been due to improper selection of cases; hyaluronidase therapy has been tried in types of cases in which our later studies have shown that it will not work. We have not treated a patient with the enzyme for long periods of time clinically. In our slight experience it has failed to prevent bladder calculi in recumbent patients.

In the present state of knowledge it would appear that hyaluronidase therapy is not indicated in most cases of calculi but may be tried in rapidly recurring cases in which the necessary dosage of the enzyme can be kept low (150-450 TRU daily). It may also be tried in cases in which our other regimens (after proper application) have failed and in which the factor of dosage necessary to keep turbid urine clear has been equilibrated with the cost of the enzyme on a long term basis and the desperateness of the particular case.

What has been said does not constitute an endorsement for the use of hyaluronidase therapy to prevent renal calculus. I wish to emphasize that I do not even know whether stone will be prevented if the turbid urine of a patient predisposed to calculus formation is kept clear and free of sediment by hyaluronidase therapy. From my studies it would appear that further work should be carried out on carefully selected patients, and such studies should be done critically with adequate laboratory controls on the basic science level.

SUMMARY AND CONCLUSIONS

The use of repeated subcutaneous injections of hyaluronidase to prevent renal calculus is not without danger. Occasionally stone formation may be facilitated by what is known as the sensitization reaction, said to be due to too small dosage of hyaluronidase. A case is presented in which there was rapid recurrence of a large cystine calculus in two months after surgical removal of a small cystine calculus from the same kidney. The patient received hyaluronidase subcutaneously for the two month period, and evidence is presented to justify the belief that the recurrence was due to hyaluronidase.

No patient should receive frequently repeated hyaluronidase injections to prevent renal calculus until certain

preliminary tests have been done to rule out the possibility of facilitation of stone formation. While the results of hyaluronidase therapy to prevent recurrence of renal stone have, in general, been disappointing, it would appear that further critical studies are indicated on carefully selected cases.

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BARIUM GRANULOMA OF THE RECTUM

REPORT OF A CASE

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and

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To the best of our knowledge, barium sulfate has not been described as the cause of a foreign body granuloma in the alimentary tract. The identification of barium as the cause of a polypoid submucosal lesion of the rectum furnishes the basis of this report.

Refvem,¹ by using polarized light, reexamined 209 lesions initially diagnosed as foreign body granuloma, granulation tissue, and chronic specific and nonspecific inflammation of the intestinal tract. He found foreign bodies in 53. Talc was the causative agent in 60% of these cases, with biotite, calcareous spar, and cotton comprising another 21%. Unidentified foreign bodies caused the other 19%. In his series, the highest incidence of foreign body granulomas was in the anorectal region, and 75% of these were due to talc. Barium was not identified in any of the cases.

Barium sulfate suspension has been observed entering the bronchi by accidental aspiration or through a tracheobronchial fistula.² Small amounts of barium in the lung are apparently not of serious consequence and may produce no symptoms. There are reports of barium entering the peritoneal cavity through perforations, traumatic or inflammatory, of the alimentary tract.³ We have observed two such cases; one in a patient with a perforated duodenal ulcer who was given a barium swallow under an erroneous diagnosis and one in a patient with an old ruptured appendix who also received a barium meal and showed barium emerging from the appendical opening. These cases will be published in more detail subsequently.

If death ensues from such a mishap, it is due to the resultant peritonitis and not to any peculiar property of

From the Laboratory of Surgical Pathology and the Department of Legal Medicine, Medical College of Virginia.

1. Refvem, O.: Chronic Granulomas in Alimentary Tract Caused by Minute Mineral Particles, *Acta path. et microbiol. scandinav.* 25: 107-121, 1948.

2. (a) Fishel, C. R.: Inhalation of Barium in Solution, *J. A. M. A.* 80: 102 (Jan. 13) 1923. (b) Huston, J., Jr.; Wallach, D. P., and Cunningham, G. J.: Pulmonary Reaction to Barium Sulfate in Rats, *Am. J. Arch. Path.* 54: 430-438 (Nov.) 1952. (c) Sullivan, S. J.: Aspiration of Barium Facilitating Death in Debilitated Patient, *J. A. M. A.* 103: 338 (Aug. 4) 1934.

3. (a) Hayden, R. S.: Perforation of Duodenal Ulcer During Fluoroscopic, *Radiology* 57: 214-216, 1951. (b) Kleinsasser, L. J., and Warsaw, H.: Perforation of Sigmoid Colon During Barium Enema, *Ann. Surg.* 135: 560-564, 1952. (c) Maschoff, W.: Fremdkörpergranulome des Peritoneums durch Röntgenkontrastbrei, *Arch. klin. Chir.* 94: 165-170, 1938.

the barium itself. In one case, the barium was seen in roentgenograms of the abdomen four years after it entered the peritoneal cavity through a perforated duodenal ulcer at the time of fluoroscopy.^{3a} The patient remained asymptomatic.



Fig. 1.—A, photomicrograph showing intact rectal mucosa over rectal nodule ($\times 50$), and B, giant cells and scattered crystalline material in submucosa of foreign body-granuloma ($\times 100$).

There appears to be a general agreement that barium in small amounts may remain localized in the peritoneal cavity for an indefinite period without local complications or signs of toxicity. Histological proof of a granuloma produced by barium is presented in a paper by Masshoff.^{3c} There is also some recent experimental work on the effect of barium in the abdominal cavity,^{3b} and in the lungs.^{2b}

In the case reported by Masshoff a "pea-sized" nodule of smooth, rather firm, gray-white tissue was found on the posterior peritoneum near the level of the third lumbar vertebra in a 47-year-old woman who had undergone an operation for obstruction of the sigmoid colon caused by endometriosis. A colostomy was performed, and sometime prior to the second operation a barium enema had been given. There was no suspicion that barium had entered the peritoneal cavity, and it was only after examination of the nodule removed at the second operation for repair of the colostomy that the nature of the nodule was determined.

REPORT OF A CASE

A 53-year-old Negro man was admitted to St. Philip Hospital on June 19, 1953, with complaints of mild persistent pain in the midabdominal region for two months and of bright red blood in the stools for one month. Constipation had been intermittent for 8 to 12 months; there had been occasional vomiting. His appetite was poor, but he had no known weight loss. Roentgenograms of the gastrointestinal tract had been ordered

by his physician on May 7, 1953, before admission. Results of the barium enema were unsatisfactory, and a repeat study was made on May 28, 1953, using barium solution and tannic acid mixture with air contrast. The first films taken were unsatisfactory so a second enema was administered on the same day. No technical difficulties were noted during the administration of the enemas, and the patient did not complain of any pain during the procedures. No tumor or other abnormality was noted in the report of the roentgenogram.

Physical examination revealed a pedunculated tumor approximately 1 cm. in diameter palpable on the posterior wall of the rectum, 6 cm. above the anal orifice. No bleeding was observed. Internal hemorrhoids were present. The polypoid lesion was removed on June 22, 1953, and a hemorrhoidectomy was performed on June 25, 1953.

Pathological examination of the gross structure revealed a polypoid lesion measuring 1.2 by 1 by 0.3 cm. with intact rectal mucosa covering a rather firm gray-white circumscribed nodule. Microscopic study of the sections showed the rectal wall with an oval, circumscribed, granulomatous lesion covered by intact rectal mucosa (fig. 1A). The lesion was composed of fibroblasts, histiocytes, and multinucleated giant cells of the foreign body type arranged in haphazard fashion (fig. 1B). Scattered among the cellular elements were numerous doubly refractile crystals of various shapes, but appearing principally as rhomboid plates (fig. 2A). These were particularly evident with the aid of polarized light (fig. 2B).

In order to identify the foreign material responsible for the foreign body granuloma, a suspension of barium was examined under the microscope. Crystals were seen that were identical

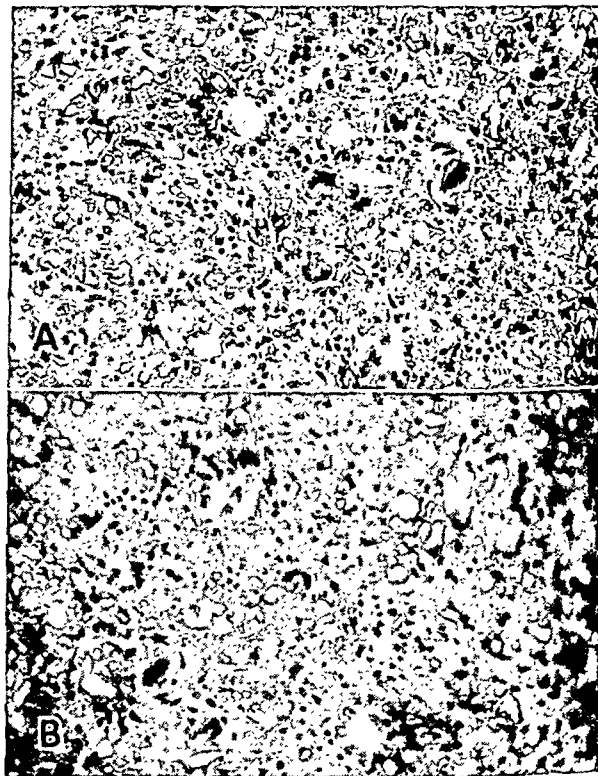


Fig. 2.—A, photomicrograph showing greater detail of crystals and granulomatous reaction ($\times 200$), and B, the same with polarized light.

to those found in the tissue. To furnish conclusive proof, some of the tissue was sent to the toxicologist at the office of the State Chief Medical Examiner.

The following brief description is of the methods employed: A 5 gm. sample of fixed tissue (rectum) was analyzed for foreign metallic bodies. Spectrographic analysis was the procedure of choice for the detection of trace foreign metals. A Bausch and Lomb large quartz spectrograph was used (10 micron slit, 7.5 amp. direct current, and 60 seconds exposure

time, with arc illumination). The tissue was digested with nitric, sulfuric, and perchloric acids and then concentrated to 1 ml. The sediment and solution were transferred drop by drop into the crater of the positive carbon electrode and evaporated to dryness after each transfer. A few particles of finely ground carbon were added, and then the sample was arced. Characteristic barium lines were detected at 2,634, 2,596, 2,702, 2,785, 3,071, 3,262, and 3,501 Å. Control samples were then analyzed (normal colon) in an identical manner. Controls did not yield barium. Visual density comparisons were made with standard barium lines, and it was determined that the sample contained more than 1 mg. of barium in 5 gm. of tissue (20 mg. of barium per 100 cc.).

COMMENT

In this case, barium undoubtedly was deposited in the rectal wall during one of the barium enema examinations, although, theoretically, it would be possible for barium ingested orally to lodge in a crypt in the rectum and become sealed off later. The danger of perforation of the rectal wall by the tip of an enema tube has been emphasized.⁴ Traumatic injuries of the rectal mucosa following self-administered enemas are not infrequently seen by proctologists during routine sigmoidoscopic examinations.^{4c} The presence of a rectal polyp, hemorrhoids, or a fissure increase the possibility of trauma to the rectal wall. The enema tube may abrade the surface of a hemorrhoid or lodge momentarily at the base of the polyp or in a fissure and thus provide the site of entry for any solution subsequently administered during the examination. Such superficial injuries in the lower rectum may be entirely without pain to the patient and so pass unnoticed since the sensory nerve supply stops at the dentate margin. The patient in our case made no complaint of pain during any of the barium enemas.

The finding of a barium granuloma within the rectal wall in this patient leads us to believe that the mucous membrane was traumatized during a barium enema and allowed the escape of barium into the tissues. The barium suspension was then deposited within the submucosa with subsequent healing of the mucosal defect and development of a foreign body granuloma.

SUMMARY

A foreign body granuloma of the rectum caused by barium sulfate is reported. The cause of the lesion is discussed. This appears to be the first such case reported.

1200 E. Broad St. (19) (Dr. Beddöe).

4. (a) Ballon, H. C., and Goldbloom, A.: Serious Injury to Rectum from Improperly Administered Enemas, *Canad. M. A. J.* 45: 345-348, 1941. (b) Bastedo, W. A.: Colon Irrigations, *J. A. M. A.* 98: 734-736 (Feb. 27) 1932. (c) Pratt, J. H., and Jackman, R. J.: Perforations of the Rectal Wall by Enema Tips, *Proc. Staff Meet., Mayo Clin.* 20: 277-283, 1945.

Physical Agents for Relief of Pain.—The use of water, usually in motion, is helpful in acute injuries to extremities. Contrast baths are especially helpful in treating osteoarthritis of the hands and feet. The use of the whirlpool bath seems to relax the muscles of the extremity which is immersed and to produce some relief of pain. . . . The application of cold packs or ice bags is often effective in relieving pain during the acute stages of sprains and strains and its analgesic effect seems to stem from two properties: (1) that of constriction of local blood vessels with resulting reduction in the amount of congestion and (2) the direct sedative effect upon the nerves themselves. This latter property is made use of in refrigeration anesthesia.—W. F. Wilhelm, M.D., and F. H. Krusen, M.D., *Pain from the Standpoint of Physical Medicine, Journal-Lancet*, October, 1953.

CONGENITAL RETROVERSION OF THE UTERUS DUE TO AN ABNORMALLY PLACED SIGMOID COLON

Joshua W. Davies, M.D., New York

This presentation does not deal with consistent distortions of the uterine fundus due to adhesions following an inflammatory process but with torsion and retroversion of the uterus due to a developmental anomaly of the sigmoid colon. Symptoms overlap the various fields of specialization and are of interest to the internist, orthopedist, abdominal surgeon, and gynecologist.

The sigmoid colon crosses the brim of the true pelvis at the sacroiliac articulation of the left side to end in the rectum. With the brim of the pelvis divided into twelve segments, the symphysis may be placed at six o'clock, the left infundibulopelvic ligament at three o'clock, and the sacroiliac articulation at two o'clock. A colon that is moder-

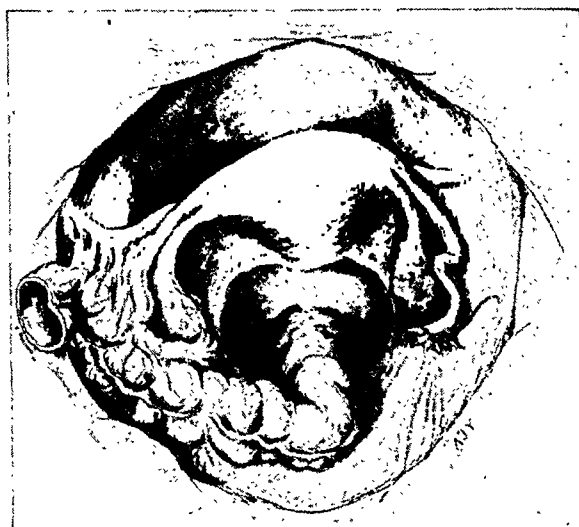


Fig. 1.—The uterus retrocessed and rotated counterclockwise owing to an adhesion between the sigmoid colon and the round ligament, Fallopian tube, and ovary on the left side. Contraction of the round ligament tends to draw the colon anteriorly rather than to act on the uterine fundus.

ately distended because of constipation does not encroach on the infundibulopelvic vascular pedicle, which carries blood vessels, nerves, and lymphatics to the left ovary and fallopian tube. Occasionally, however, the colon may be slightly displaced and enter the pelvis at three o'clock. By so doing it forces the infundibulopelvic ligament against the lateral pelvic wall and obstructs the venous flow of the left adnexa. Infrequently the colon may be displaced to the region of the left round ligament and be intimately attached to it. The left tube and ovary are thereby displaced and compressed by the overhanging colon, and the attachment of the round ligament to the sigmoid negates its function as a uterine stabilizer (fig. 1). Consequently there is retrocession and rotation of the uterine fundus, with resultant vascular stasis due not only to compression but also to angulation of the veins.

Because of the abnormal attachment of the gastrointestinal and reproductive organs there are symptoms referable to both systems. They may be vague and of varying degrees of severity, ranging from abdominal pain or discomfort,

accompanied by nausea, is present in the majority of patients. The nausea may be mild and listed among many indefinite symptoms, but occasionally it may be the dominant complaint. Spasm and reversed peristalsis lead to discomfort and fleeting pains in the flexures of the colon. At the ileocecal valve the spasm may be interpreted as due to chronic appendicitis. Rectal consciousness, resulting from sensations interpreted as due to pressure or burning, is conspicuous premenstrually and at the time of ovulation, when congestion is reflected to the adherent colon. Constipation, with or without hemorrhoids, is dominant.

Vascular symptoms are the result of stasis and lead to fatigue, edema, sacral discomfort, heaviness and numbness of the thighs, and paresthesia over various areas of the lower abdomen, thighs, and back. At times there may be a serous transudate from the rectum or the vagina. The vaginal secretion is not thick and tenacious, which

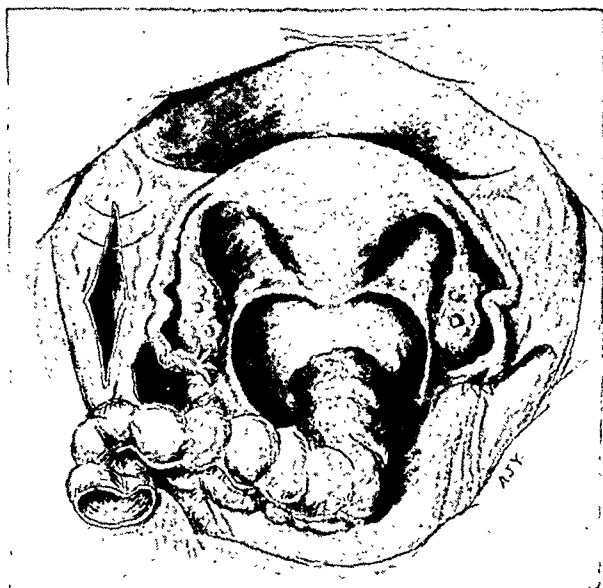


Fig. 2.—The colon after separation from the round ligament, tube, and ovary, with restored independent function of the previously adherent pelvic viscera. The opening in the peritoneum is closed with interrupted sutures that approximate the extremities of the dividing incision.

would suggest its origin in the cervical glands, nor is it thick and cheesy, which would suggest a vaginal infestation with Döderlein's bacillus (*Lactobacillus acidophilus*). The seepage is thin and watery and may be due to oversecretion by the congested endometrium, or to a transudate through the vaginal epithelium that follows the congestion of the pelvic lymphatics.

Fatigue is frequently due to venous congestion and the pooling of blood in the pelvic veins. Patients noticing fatigue usually feel much relieved after menstruation, provided the flow has not been too heavy. Occasionally a patient will confess that she seems to be losing her stamina and that she feels more rested and comfortable after sleeping on the abdomen. The assumption of the knee chest position affords temporary relief, and this observation has led many patients to the conclusion that something is at fault in the pelvis.

Heaviness and numbness of the thighs are the result of congestion in the veins that lie in and are supported by the visceral fascia adjacent to the peritoneum. This sup-

porting fascia envelops the sacral nerves and any displacement of the fascia by the engorged veins, lymphatics or edema may angulate or compress the sacral nerves. Numbness, paresthesia, and pain may follow compression or angulation of the sacral nerves. The nerve most frequently affected is the lateral femoral cutaneous nerve of the thigh, and its involvement explains the discomfort in the anterior aspect of the thigh below the inguinal ligament. The preperitoneal visceral fascia can be traced through the sacroiliac joint to the subcutaneous tissue of the back underlying the lateral depressions of Michaelis's rhomboid. Edema of this tissue may cause discomfort in the sacroiliac region, which is aggravated by faulty posture or sleeping on a soft mattress.

Gynecologic symptoms may be dysmenorrhea, menorrhagia, dyspareunia, sterility, early abortion, a sensation of tugging of the labia, and prolapse of the uterus. Dysmenorrhea is due to congestion and edema of the generative organisms, including the peritoneum of the pelvic viscera, and imperfect drainage from the uterus. Menorrhagia is probably due to venous congestion that follows a kinking or stasis of the uterine or ovarian veins. The process may extend to the formation of pelvic varices. Frequently the menstrual periods may last as long as seven days, and while the blood loss may not be debilitating, there is a consciousness of the flow that in itself imposes certain restrictions, both physical and psychic, on the woman. Reduction of the menstrual flow from seven to five days will, in the course of a year, represent almost an extra month of freedom from bleeding.

Dyspareunia is to be expected with engorgement of the pelvic peritoneum. If gentle pelvic manipulation is painful, added congestion due to emotion and the fear of pain from pressure on a fixed uterus may strain a harmonious marital relationship. The cure is surgical and not psychiatric therapy. Sterility or early abortion may be one of the first complaints, because the maternal instinct usually overshadows physical discomfort. The sterility, perhaps, is due to venous congestion and angulation of the tubes brought about by the displacement and twisting of the uterus. Tubal spasm may follow irritation by the overhanging sigmoid colon. Should pregnancy be established, there is the possibility of abortion due to cervical dilatation that accompanies the inability of the uterus to expand into the abdominal cavity.

The sensation of tugging of the labia is due to the involuntary spasm of the muscle in the round ligaments of the uterus that traverse the inguinal canal to insert in the labia majora. The tugging is an attempt to pull the retroverted uterus to normal position and is most apparent immediately after voiding. Prolapse of the uterus in young women may follow retrodisplacement of the uterus. Such a displacement should not be treated entirely from below, but should include an exploration from above to determine whether the uterus is drawn posteriorly by the sigmoid colon. If so, steps should be undertaken to correct such congenital displacement.

Diagnosis is difficult because of the overlapping of complaints. A pelvic examination by a gynecologist aware of dysfunction due to a displaced sigmoid is important. He may be able to discern a retrocessed uterus

that is drawn to the left and slightly rotated. Increased resistance to the examining finger by the paracervical supports of the left side suggests a left-sided disturbance that should be discussed with the referring physician, who may be able to institute corrective bowel therapy. Especially is this advisable in patients who have been operated on for chronic appendicitis and then complain of pain in the lower left quadrant of the abdomen, spasm of the rectum, and apprehension.

Treatment is at first medical. An accurate diagnosis even with the aid of roentgenograms of the colon is uncertain, but the gynecologist should be aware of congenital displacements of the colon that may alter normal gynecologic function. Whenever the abdomen is opened for the relief of a symptomatic fixed retroversion of the uterus, it is not enough to perform a round ligament fixation operation without determining whether an abnormally placed sigmoid may be a factor in causing the retroversion. A slightly displaced sigmoid colon may be readily restored by incising the fine bands that may draw the sigmoid upon the infundibulopelvic ligament, but an attachment between the sigmoid and the round ligament is treated by incising the peritoneum, which unites them, parallel with the colon and then closing the opening in the opposite direction so that the sigmoid will be displaced toward the sacroiliac area (fig. 2). Even though one may detect a violent contraction in the round ligament after its division from the colon, it is advisable to perform a round ligament shortening operation that will draw the appendages anterior to the colon. Occasionally the cecum or terminal ileum may be adherent to the right round ligament and the division of congenital attachments between them is advisable if one wishes to maintain the independence of the various systems.

SUMMARY

The sigmoid colon enters the pelvis at the sacroiliac joint. In this segment it does not drag upon the infundibulopelvic ligament, which carries blood, lymph, and nerves to the left adnexa. Occasionally the colon overhangs the vascular infundibulopelvic ligament. Further displacement may compress the left tube and ovary. An attachment between the sigmoid and the left round ligament may cause torsion retroversion of the uterine fundus, with symptoms referable both to the reproductive and gastrointestinal systems. The independent function of the two systems may be established by incising the peritoneum parallel with the colon and closing the diamond-shaped raw area so that the separated structures will be as far removed as possible.

580 Park Ave (21).

Hypotension.—Hypotension is a manifestation of a disturbance in the mechanisms sustaining the level of the blood pressure in the cardiovascular system. The maintenance of a normal level of blood pressure is dependent on several simultaneously interacting circulatory adjustments that include sufficient cardiac output to meet the metabolic demands of the tissues, adequate arteriolar constriction to maintain the peripheral resistance, and the presence of an effective circulating blood volume. Disturbances in any one or combination of these homeostatic mechanisms, or an imbalance in them, cause a fall in the arterial pressure.—W. E. Judson, M.D., *Hypotension: Physiologic Mechanisms and Treatment, Medical Clinics of North America*, September, 1953.

RESECTION OF AORTIC BIFURCATION AND REPLACEMENT WITH HOMOLOGOUS GRAFT FOR ANEURYSM

D. Emerick Szilagyi, M.D.

and

John A. Hemmer, M.D., Detroit

Treatment by resection of the aortic bifurcation and grafting is a very recent addition to the methods of management of abdominal aortic aneurysms. A bibliographic survey through April, 1953, disclosed only one recorded successful instance of such an operation, namely the case of Dubost and associates.¹ Schafer and Hardin² reported a similar case that, however, ended fatally owing to disruption of the aortic anastomosis on the 29th postoperative day. We know, however, of three other instances in which the procedure was performed successfully.³ Because of the scarcity of recorded experience with this form of therapy, an account of the following case may have interest.

REPORT OF A CASE

The patient was a 69-year-old white man who was first seen at the Henry Ford Hospital on Nov. 26, 1952, for the complaint of constipation. Subsequent investigation revealed nothing of further importance about this complaint, but the systemic survey showed that the patient had had severe intermittent claudication of his left leg for five years, and physical examination demonstrated the presence of a large pulsating mass in the upper left side of the abdomen. Questioning disclosed that the patient had first been told about a pulsating abdominal swelling two years earlier and that he had received intravenous injection treatment for peripheral vascular insufficiency, with some relief. At the time of his present admission he could not walk 200 yd. (60.96 m.) without serious discomfort.

On examination the patient seemed slightly younger than his age. He appeared healthy and his state of nutrition normal. He showed evidences of mild to moderate generalized arteriosclerotic changes. In the midabdomen, slightly to the left of the midline, there was a mass measuring about 6 by 6 by 8 cm.; it was slightly tender, movable, expansile, and pulsating. The outward appearance of the extremities was normal. There were easily palpable femoral pulsations. The left dorsalis pedis and posterior tibial arterial pulsations were not palpable. The pulsation of the right posterior tibial artery was moderately strong, while the presence of the right dorsalis pedis pulsation was questionable. The remainder of the physical examination showed nothing worthy of note. The results of the blood serological, morphological, and chemical studies were normal. Liver and renal function tests, chest radiograms, and electrocardiograms likewise showed no important abnormalities.

A translumbar aortogram⁴ confirmed the clinical impression of the presence of an aortic aneurysm (fig. 1). The lower border of the aneurysm was located 2.5 cm. proximal to the aortic bifurcation, while its upper limit reached a point 3 cm. distal

From the Division of General Surgery, Henry Ford Hospital.

1. Dubost, C.; Allary, M., and Oeconomos, N.: A propos du traitement des anévrysmes de l'aorte: Ablation de l'anévrysme: Rétablissement de la continuité par greffe d'aorte humaine conservée, *Mém. Acad. chir.* 77: 381-383 (April 11-18) 1951.

2. Schafer, P. W., and Hardin, C. A.: Use of Temporary Polythene Shunts to Permit Occlusion, Resection, and Frozen Homologous Graft Replacement of Vital Vessel Segments: Laboratory and Clinical Study, *Surgery* 31: 186-199 (Feb.) 1952.

3. Julian, O. C., and others: paper read before the American Surgical Association, Los Angeles, April 1-3; 1953. DeBakey, M. E., and Cooley, D. A.: *ibid.* Moore, S. W., and Keffer, E. B.: *ibid.*

4. Smith, P. G.; Rush, T. W., and Evans, A. T.: Technique of Translumbar Arteriography, *J. A. M. A.* 148: 255-258 (Jan. 26) 1952.

to the level of the right renal artery. Retrograde iliac arteriograms showed a patent vascular tree with advanced atheromatous intimal changes. Although the latter finding raised some misgivings about the suitability of the iliac vessels for anastomosis, it was decided to attempt a resection and replacement of the aortic segment bearing the aneurysm.

On Dec. 20, 1952, the patient was anesthetized with intraspinal administration of procaine (Novocaine) hydrochloride, and a cross-shaped midline and transverse incision was made. The aorta and its main divisions were exposed through the posterior parietal peritoneum from the lower border of the pancreas downward to a level midway between the bifurcations of the common iliac arteries and the ligaments of Poupart. The disposition of the aneurysm was very much the same as suggested by the aortogram, but its size was about half again as large (fig. 2). By peeling the left kidney out of its capsule and dislocating it upward and medially, thereby displacing the left renal vein in the same direction, a 2.5 cm. segment of the aorta could be freed between the upper limit of the aneurysm and the lower border of the right renal artery. After placing loose slings of tape around the aorta above and around the common iliac arteries below, the main body of the aneurysm

pleting the anastomosis. The anastomosis of the left common iliac artery to the graft left so much to be desired that a small polyethylene catheter was placed in situ directly proximal to the anastomosis for postoperative regional heparinization. All suture lines were covered with fascial strips taken from the



Fig. 1.—A, preoperative translumbar aortogram showing aortic aneurysm; B, the same six weeks after surgery showing patent aortic and iliac anastomoses.

was dissected from its posterior connections with ease after dividing the second and third paired lumbar arteries. The inferior mesenteric artery coming off the midpoint of the aneurysm was also tied and cut. The aorta was occluded by crowding a Potts ductus clamp against the lower border of the right renal artery; the common iliac arteries were secured in bulldog clamps directly proximal to the hypogastric branches; and the aneurysm was resected.

A 13-day-old graft that was preserved in modified Tyrode's solution⁵ was used to reestablish vascular continuity. The anastomosis between the upper end of the graft and the extremely sclerotic aortic stump presented some difficulties but was accomplished without too much delay. However, the union of the iliac limbs of the graft with the iliac arterial stumps presented a serious problem because of the atheromatous decay of these arteries. It was necessary to excise long segments of atherosclerotic intima from these vessels before com-

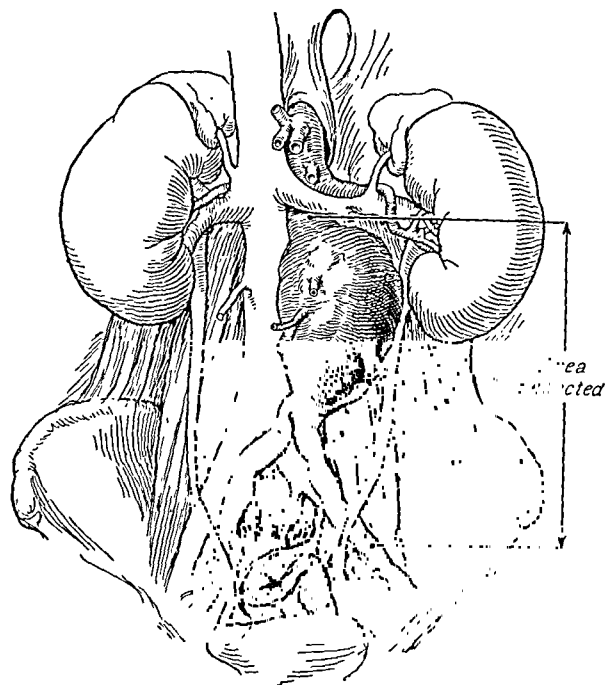


Fig. 2.—Drawing showing appearance of aneurysm at operation.

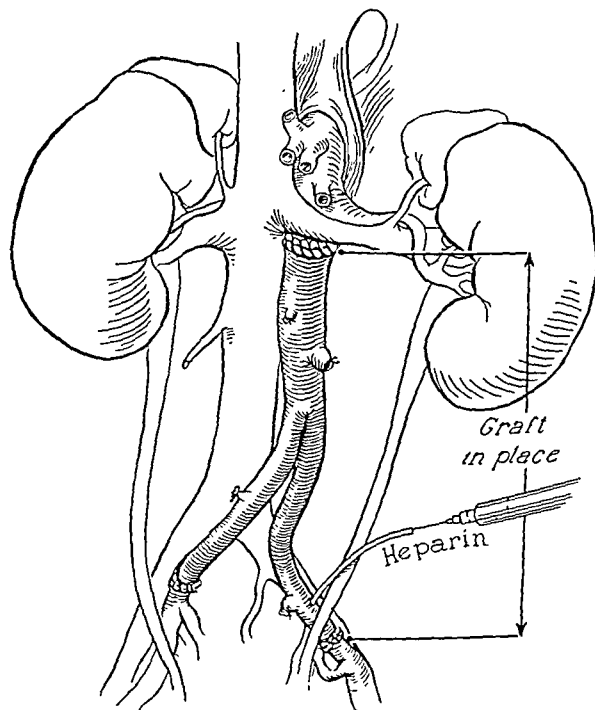


Fig. 3.—Drawing showing graft in place.

pleting the anastomosis. The anastomosis of the left common iliac artery to the graft left so much to be desired that a small polyethylene catheter was placed in situ directly proximal to the anastomosis for postoperative regional heparinization. All suture lines were covered with fascial strips taken from the posterior rectus sheath (fig. 3). It may be noted that the abdominal aorta was clamped for one hour and 20 minutes. The total operating time was five hours and 30 minutes. Microscopic examination of the aneurysm showed it to be atherosclerotic in origin.

5. Gross, R. E., Ell, A. H., Jr., and Pierce, E. C.: Methods for Preservation and Transplantation of Arterial Grafts: Observations on Arterial Grafts in Dogs: Report of Transplantation of Preserved Arterial Grafts in Nine Human Cases, *Surg., Gynec. & Obst.*, 88: 689-701 (June) 1949.

After operation, the right lower extremity regained its usual vascularity in from 30 to 60 minutes. On the left, however, the state of the limb at first looked alarming. From just below the knee downward, the leg was cold, mottled, bluish-grey, and almost entirely devoid of sensory and motor response. Heparin was administered as a continuous drip through the left iliac intra-arterial catheter. Two hundred to 300 mg. of heparin was given in 1,000 to 1,500 ml. of 5% dextrose daily for 10 days. The clotting time, as determined four times daily on venous blood obtained from the left foot, was kept between 12 and 14 minutes. The limb gradually improved, and 72 hours postoperatively it had regained its preoperative appearance. The femoral pulse, however, remained the only palpable pulsation in the limb.

In other respects the postoperative course was at first hectic. Almost complete anuria, wound disruption, and phlebothrombosis had to be dealt with in turn. Phlebothrombosis necessitated the resumption and continuation of anticoagulant therapy (first with heparin intravenously and then with bishydroxycoumarin [Dicoumarin] orally) until the 28th postoperative day. By the 15th postoperative day, the patient's condition had improved sufficiently to permit ambulation with a normal gait. There was no impairment of the sensory or motor nerve distribution of the lumbar or sacral spinal cord. Hospitalization was prolonged by the slow healing of the operative incision that eventually developed into a large hernia that will require later repair. When the patient was discharged on the 42nd postoperative day, his only complaint was mild intermittent claudication of the left lower limb on moderate to severe exertion. At this time all but one of the pulsations of the lower limbs were readily palpable; the left posterior tibial arterial pulse could not be palpated. During the following seven and a half months, the patient's good general condition persisted, and intermittent claudication gradually disappeared. A translumbar aortogram six weeks after operation showed patent aortic and right iliac anastomosis of normal width; the left iliac anastomosis was also patent but slightly narrowed (fig. 1B).

SUMMARY

A report is given of a case of atherosclerotic abdominal aortic aneurysm that was treated with resection of the aortic bifurcation and replacement by homologous graft. During a period of observation of eight months, the result of the operation remained excellent.

The Physician and His Patient.—In . . . medical practice, the physician's personality is one of . . . the most potent therapeutic tool[s] he can use. . . . Patients come to doctors with so many different attitudes. Often they are fearful. Some come expecting magic. Some times they come only to please someone else. Some times they come in to be defiant. They may come because they want corroboration, or to obtain sympathy and attention, or to be told what to do. Some even come with the intent to deceive the physician. On the other hand, the physician himself is a person with his private prejudices, defenses, blind-spots, ignorance. These can be reflected in excessive tests and examinations. . . . Some times his uncertainty is expressed in his use of platitudes or placebos, or a know-it-all attitude. Not infrequently, I am sure, some of us become irritated or annoyed, conceivably even vindictive and hostile. . . . This interpersonal relationship is one of the salient points of all psychotherapy. Whether he knows it or not, every physician uses psychotherapy. It may be good or bad, depending upon his attitudes, actions and reactions, his conduct, his ability to listen, his knowledge in knowing what to say and when to say it. If and when our psychiatric knowledge of this all-important phase of our professional work can be imparted more adequately and more clearly to medical students, we can expect a further improvement in the practice of medicine.—W. C. Menninger, M.D., Psychiatry and the Practice of Medicine, *Bulletin of the Menninger Clinic*, September, 1953.

TRANSPALATINE SURGERY FOR CONGENITAL BILATERAL CHOANAL ATRESIA

REPORT OF A CASE

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Congenital bilateral choanal atresia was reported first as an observation at autopsy by Otto¹ in 1829. Medovy and Beckman² have collected 115 cases from the literature up to 1945. Subsequently Owens,³ Cohen and Witchell,⁴ Hanckel,⁵ Aboulker,⁶ Whitehouse and Holt,⁷ and Johnson⁸ have added eight cases. Flake⁹ has treated a series of 25 patients not reported on. The anomaly probably results from an abnormal embryologic development. In the formation of the nasal passages, the nasobuccal membrane invaginates into the forming nose and migrates posteriorly as a blind pouch. Similarly, the buccopharyngeal membrane moves into the choanal area from the posterior aspect. Normally, the two rupture at their points of contact and the nasal passages are formed. Persistence of either membrane or the mesodermal elements between them gives rise to an occlusion of the choanae that may involve one or both sides. Ninety per cent of these obstructions are bony.

The birth of an infant without a nasal airway is a true medical emergency. The salient features are recurrent cyanosis, mouth breathing, dysphagia, and nasal discharge. Feeding attempts cause respiratory embarrassment and may result in the aspiration of foreign material into the tracheobronchial tree. Malnutrition will develop quickly. The diagnosis can be established easily and promptly. The failure of a small catheter to pass through either nostril into the pharynx is indication for further investigation. Roentgenograms of iodized oil instilled into the nasal cavities provide pictorial confirmation (fig. 1 and 2).

Except for Cinelli's¹⁰ report that advocated two full years of nursing care before surgical intervention, most opinion favors early surgical relief. In many infants, a tracheotomy has been performed in an effort to improve nursing ability prior to nasal surgery. Surgical correction is attempted by an intranasal, transantral,¹¹ or a trans-

From the Department of Otolaryngology, Carle Memorial Hospital, and Carle Hospital Clinic.

Dr. James Hooker made the diagnosis and handled the medical aspects of this case.

1. Otto, A. W.: A Compendium of Human and Comparative Pathological Anatomy, translated from the German by J. F. South, London, B. Fellows, 1831, vol. 1.

2. Medovy, H., and Beckman, I. H.: Asphyxial Attacks in the Newborn Infant Due to Congenital Occlusion of the Posterior Nares, *Pediatrics* 8: 678 (Nov.) 1951.

3. Owens, H.: Observations in Treating Seven Cases of Choanal Atresia by the Transpalatine Approach, *Laryngoscope* 61: 304 (April) 1951.

4. Cohen, H. J., and Witchell, I. S.: Bilateral Congenital Choanal Atresia in Newborn, *A. M. A. Am. J. Dis. Child.* 83: 328 (March) 1952.

5. Hanckel, R. W.: Bilateral Choanal Atresia, *Ann. Otol. Rhin. & Laryng.* 58: 852 (Sept.) 1949.

6. Aboulker, P.: Transpalatine Approach in Operations for Choanal Occlusion, *Ann. oto-laryng.* 68: 255, 1951.

7. Whitehouse, W. M., and Holt, J. F.: Paradoxical Expiratory Stridor of the Hypopharynx in Siblings with Bilateral Choanal Atresia, *Radiology* 59: 216 (Aug.) 1952.

8. Johnson, G. E.: Congenital Atresia of the Nasal Choanae, *J. M. A. Alabama* 21: 357 (June) 1952.

9. Flake, C. G.: Personal communication to the author.

10. Cinelli, A. A.: Nasal Atresia: A Surgical Approach, *Ann. Otol. Rhin. & Laryng.* 49: 912 (Dec.) 1940.

11. Wright, W. K.; Shambaugh, G. E., Jr., and Green, L.: Congenital Choanal Atresia: A New Surgical Approach, *Ann. Otol. Rhin. & Laryng.* 56: 120 (March) 1947.

palatine approach. The intranasal route has been used successfully in the newborn in this country. This procedure involves the use of drills, trocars, curets, chisels, forceps, caustics, and electrocautery. The last two methods are particularly useful in the membranous type of obstruction. The transantral approach has not been used in infants.

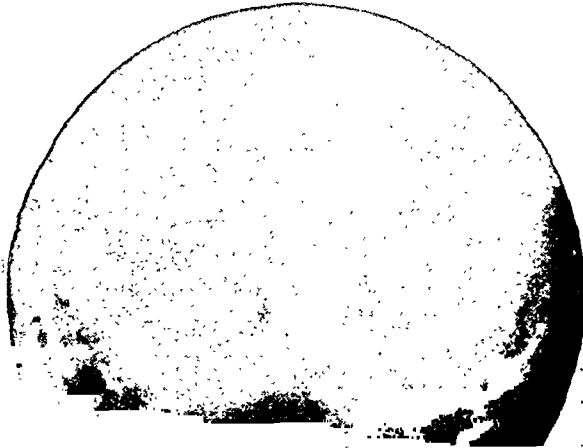


Fig. 1.—Anteroposterior roentgenogram showing retention of radiopaque oil instilled into the left nasal passage. A study of the right nasal passage was identical.

In contrast to the blind intranasal approach, the transpalatine route offers surgery under direct vision. In this technique, the reflection of a palatal flap and resection of the hard palate are used for exposure of the atretic site. The details of this technique are well illustrated and described in articles by Ruddy,¹² Owens,³ Hanckel,⁵ and Dolowitz.¹³ Despite the increased interest in transpalatine surgery, there remains a dearth of reports relative to infants below six months of age. Only five have been recorded, four of these by Aboulker in the foreign literature and one by Hanckel in the United States. This case report serves to illustrate that corrective surgery of congenital bilateral choanal atresia under direct vision is feasible in the very young infant. No special equipment is required, and the transpalatine operation is technically within the capabilities of the average otolaryngologist.

REPORT OF A CASE

A white female infant was born at term, Feb. 10, 1952. Delivery was spontaneous and without difficulty. The birth weight was 7 lb. 7 oz. (3,373 gm.). She was admitted to the Carle Memorial Hospital on April 6, 1952, with complaints of (1) difficult, noisy breathing, (2) recurrent cyanosis, (3) poor ability to nurse, (4) profuse nasal discharge, and (5) loss of weight. The infant then weighed 6 lb. 6 oz. (2,891 gm.), appeared malnourished, and breathed laboriously. Her nose was filled with a thin purulent discharge. Except for the nasal symptoms, the physical examination revealed no abnormalities. Suspecting choanal atresia, the examining pediatrician attempted to pass a small nasal catheter through each nostril

without success. The tentative diagnosis of congenital bilateral choanal atresia was later confirmed by roentgenograms of iodized oil in the nasal cavities. By constant attendance and careful nursing care, the infant gradually reached the weight of 7 lb. (3,175 gm.) at 10 weeks of age. At this time (April 21) the choanal atresia was resected by the transpalatal approach. A Crowe-Davis mouth gag was employed to expose the area, and the operator sat at the head of the patient. No difficulty was experienced with the ether anesthesia. The surgical technique outlined by Ruddy was followed. This consisted of a semicircular incision parallel to the alveolar ridge. A posteriorly hinged membranous flap was turned back, exposing the hard palate. Resection of the hard palate uncovered the atretic area, and a subperiosteal dissection of the mucous membrane was done. The obstruction was composed of hard bone. It was removed along with the posterior part of the septum by the use of chisels, curets, and biting forceps. The blind membranous pouches were easily identified and opened, and the lining membrane covered most of the raw areas. A single perforated no. 8 F. catheter was used as an obturator and was inserted into the left nostril and passed posteriorly into the nasopharynx. Under direct vision this tube was then doubled and passed anteriorly through the right nasal passage. The two free ends were sewed together, eliminating anchorage to tissue. The loop formed in the posterior portion of the nose thus served as a gentle dilator exerting mild lateral pressure and was moved back and forth daily to break adhesions. A change of obturator material was easily accomplished by sewing a new catheter to the old. Withdrawal of the old catheter brought the new into position. This simplified the problem of cleanliness and avoided damage to the soft tissues.

The postoperative course was uneventful. The patient gained 6 oz. (170 gm.) in the first week. A tiny fistula developed anteriorly but closed on the third postoperative day. The sutures and the catheter were removed on the 14th day. Bouginage was carried out with catheters for one week but, because of apparent developing stenosis, two short lengths of no. 10 F. catheters were inserted and anchored to the septum on May 12. The patient was released from the hospital on



Fig. 2.—Roentgenogram taken from side, showing retention of radiopaque oil in the left nasal passage. The outline at the top is the thumb of the attendant holding the patient's head.

this date, weighing 7 lb. 7 oz. The tubes were removed seven days subsequently, and the airway was excellent. Bouginage was carried out weekly until September. On Sept. 19 the child was anesthetized and the nasal airway dilated up to the size of a no. 16 F. esophageal bougie. Bouginage was again employed weekly until November, 1952. Although the child was able to tolerate the passage of a no. 14 F. bougie in the office, an examination of the nasal passages was carried out

12. Ruddy, L. W.: A Transpalatine Operation for Congenital Atresia of the Choanae in the Small Child or the Infant, *Arch. Otolaryng.* **41**: 432 (June) 1945.

13. Dolowitz, D. A., and Holley, E. B.: Congenital Choanal Atresia, *Arch. Otolaryng.* **49**: 57 (June) 1949.

with the patient under general anesthesia on Nov. 21. A definite rim of bone could be palpated with mastoid curets in each nostril. These areas were simply smoothed down, and a rubber tubing with an outside diameter of 6 mm. was anchored in the same fashion as the original catheter. The tubing was removed Dec. 12. Further therapy has not been necessary, and an excellent nasal airway has persisted. The patient has gained weight constantly, and on the last examination, May 12, 1953, she weighed 20 lb. 5 oz. (9,212 gm.). On Jan. 25, 1954, the patient was reported to weigh 30 lb. (13.6 kg.) and to be asymptomatic.

CONCLUSIONS

The diagnosis of congenital bilateral choanal atresia is made easily and may be suspected in an infant with recurrent cyanosis, feeding difficulty, mouth breathing, and nasal discharge. It is probable that some infants who have died with the diagnosis of asphyxia neonatorum were in reality victims of complete nasal atresia. A few patients have been known to survive. Surgical relief of the obstruction is imperative. Postponement of surgery until the patient can tolerate the conditions is risky and undesirable. The transpalatal approach is feasible in the young infant, offers surgery under direct vision, and does not require special instruments. Hanckel concluded that closure of the palatal wound was unnecessary because the palatal flap was always sloughed in patients under 6 months of age. Inasmuch as healing by primary intention was obtained in this patient, it seemed advantageous to close the incision. The astute physician caring for the newborn will uncover more cases in the future. The surgeon has an excellent opportunity to improve the survival rate. No previous experience is necessary to handle a case properly.

Lead Poisoning in the Pewter Era.—Just what pewter is defies simple definition. To the metallurgist, pewter is any one of a series of alloys in which tin is the dominant metal hardened by small additions of antimony, copper and bismuth. By popular consent, pewter is an alloy of tin and lead, the latter at a level of about 10%. Among the (American) colonists, pewter was any metal that might be shaped into useful objects with the meager facilities available. At times all was lead, and a 50% lead content was common. . . . The early settler was not the sort, nor was there opportunity, to have arrived accompanied by neat crates and barrels of deftly packed china and silverware. . . . Pewter lent itself to spoons, mugs, plates, porringers, tankards, tobacco jars, lamps, candlesticks, and storage vessels for foods and alcoholics. . . . The tinsmiths of England during and before the colonial period were aware of the undesirable properties of any lead content in pewter. They sought to regulate the percentage in pewter, at times demanding its elimination as a constituent. Always one argument was the harmful properties of lead. The quality of pewter descended with the increased content of lead. As a rule this poor quality (trifle, sad ware, lay metal) was shipped off to America or was fashioned there. Firm was the belief that a percent of lead at or below 10% was harmless. The demand for lower percentages was admirable, but if the truth had been known, 10% was sufficient to have induced lead poisoning under many circumstances. . . . The 1723 enactment of the Massachusetts Bay Colony prohibiting the distillation of rum through pewter stills and still heads is remarkable and perplexing. It is remarkable that without any exciting precedent this protective legal measure quickly followed the complaint from North Carolina rum drinkers of ill effects produced by New England rum. It is perplexing that no information reveals the medical guidance leading to the enactment.—C. P. McCord, M.D., *Lead and Lead Poisoning in Early America: The Pewter Era, Industrial Medicine and Surgery*, December, 1953.

SPECIAL ARTICLE

THE MEDICAL AND HOSPITAL PROGRAM OF THE VETERANS ADMINISTRATION

AN EXAMINATION OF CERTAIN POPULAR MISCONCEPTIONS

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I have always felt that when a magazine publishes an article its readers have the right to expect at least two things: first, that the author knows what he is talking about and, second, that his material is reasonably informative and interesting.

My position and experience as Chief Medical Director of the Veterans Administration and the head of its Department of Medicine and Surgery may offer some assurance that I meet the requirements of the first point; as to the second, it seems to me that what is factual and of direct concern not only to physicians but to every American taxpayer ought to invite, at the very least, sufficient interest to encourage informative reading.

Misconceptions about the Veterans Administration's medical and hospital program are numerous. They are to be found in almost any group. They may be seen in the pages of some of even the most carefully edited newspapers; in popular magazines, usually those with a penchant for breathless advance notice about the very latest in "miracle drugs"; and even in medical journals.

Such widespread misconceptions or even just plain ignorance by distorting medical facts—as I expect to show—into half-truths, or downright untruths, can do great damage to the medical and professional standing and accomplishments. Lack of information also does a great deal of mischief to public understanding of what Veterans Administration medicine is accomplishing, how it is being accomplished, and why it is being done as it is.

To put the matter bluntly, wrong is wrong and should be set right. In common fairness to veterans, the government, to every loyal, hard working member of the Veterans Administration's Department of Medicine and Surgery, to the American medical and ancillary professions—to say nothing of our taxpaying fellow citizens throughout the United States—the Veterans Administration's medical and hospital program deserves to be discussed in terms of factual accuracy.

Now, good faith is an admirable quality, but the fact that many misconceptions about the Veterans Administration may be passed from one uninformed person to another in entire good faith does not lessen by a feather-weight the grievous injury done to veterans and their loved ones, to the Veterans Administration's Department of Medicine and Surgery, or to the American medical profession, whose cooperative work is so often misunderstood, whose high motives are so hastily maligned, whose all-important professional integrity is sometimes mis-

Chief Medical Director, Veterans Administration.

takenly assailed by persons who are uninformed, albeit of good intent. Some, of course, fully informed may have less admirable motives.

I now respectfully invite my readers to examine, with me, the "A to Z" record of certain prevalent misconceptions about the Veterans Administration's medical and hospital program. If some patent examples are omitted, it is only because the list is too long for a treatise of this scope. Here, then, are some prime examples of medical misinformation about the Veterans Administration, followed in each case by a brief statement of the fact:

- (A) "*I hear that . . . 90% of patients in VA hospitals (in some statements the percentage used was 80% or two-thirds) are being treated for non-service-connected disabilities.*"

Considerable interest has been centered on the authority of the Veterans Administration to hospitalize veterans for conditions not attributable to military or naval service. Even when this authority is not questioned, questions have arisen concerning the degree to which Veterans Administration's beds are used for the care of veterans requiring hospitalization for service-connected conditions as compared to the number of beds provided for veterans requiring care for non-service-connected disabilities. To understand more clearly the composition of the patient load of the Veterans Administration, it is important to consider not only their legal status but their clinical condition as it relates to chronic illness. The most recent statements on the clinical and legal status of veterans hospitalized under Veterans Administration auspices are those pertaining to the approximately 105,000 patients in hospitals on Jan. 31, 1953. Of these: 0.8% were non-veterans (U. S. armed forces personnel, humanitarian cases, etc.); 37.4% were veterans receiving care for service-connected disabilities; 9.8% were veterans discharged from a military service for disabilities incurred in line of duty or veterans in receipt of compensation for service-connected disabilities who were receiving care for other disabilities; and 52% were other war veterans treated for non-service-connected disabilities.

To stop at this point in discussion of the legal eligibility of the Veterans Administration's patient load is to ignore the underlying concept implied in the legislative acts providing bed facilities beyond those necessary for the care of veterans suffering from service-incurred disabilities. Let us therefore examine the nature of the disabilities currently being treated in that portion of the total Veterans Administration bed facilities allocated to the care of veterans with non-service-connected disabilities only, that is, the group representing 52% of the total patients.

This group can be initially subdivided as follows: 32.3%—patients with conditions that are known to be chronic in nature, and 19.7%—patients with presumed nonchronic conditions. In the first group I have included veterans hospitalized for the treatment of tuberculosis or psychosis as well as those hospitalized for some other chronic disability as evidenced by the fact that, on the particular census day, they had already been hospitalized for more than 90 days. These undisputedly chronically ill patients total 33,866, or 32.3% of all patients. The rest of the patient load, veterans with presumably "nonchronic" disabilities, constitute 19.7% of the total patients. When

we examine the composition of the so-called nonchronic cases we find evidence to suggest that many of them are in truth chronically ill; for example, of the 20,642 veterans with presumed "nonchronic" disabilities, 6,516 patients, or 6.2% of all patients, are in receipt of or have applied for a VA pension for a permanently and totally disabling non-service-connected condition. These veterans, in addition to their severely incapacitating disability, must have incomes less than \$1,400 a year if without dependents or \$2,700 with dependents to be eligible for VA pension. While these veterans had been hospitalized for less than 90 days when the census was taken, it appears likely that because of their severe disabilities they will require long-term hospitalization. More than half of these veterans were being treated for one of the following chronic conditions: cardiovascular disease, cancer, neurological disease, or arthritis.

Another small subcategory of interest that had been included in the "nonchronic," non-service-connected class are 3,662 patients (or 3.5% of the total patient load) who on the day of the census had a claim for compensation for a service-incurred disability pending adjudication action. A significant percentage of these claims for compensation are subsequently adjudged to be service-incurred or service-aggravated disabilities and therefore would permit the reclassification of these veterans to the service-connected category.

The residual group of veterans with "nonchronic," non-service-connected conditions in hospitals comprise 10,464 patients (or 10% of the total patient load). How many of these patients may require long-term hospitalization is a moot point. One-third of these patients are found to be suffering from one of the following serious disabilities: cardiovascular disease, cancer, or neurological disease, or arthritis.

In summary, an examination of the composition of the current VA patient population makes it evident that the question of the legal eligibility of veterans is somewhat complex. It becomes obvious that a description of the patient load in terms of two classes, patients with service-connected disability and those with conditions that are not service connected, is an oversimplification. On legal grounds, there are three and not two categories of veteran patients: (1) veterans treated for service-connected disabilities, (2) veterans with compensable service-connected disabilities treated for non-service-connected disabilities only, and (3) other eligible veterans treated for non-service-connected disabilities. Moreover, on clinical grounds, we find a relatively small percentage of VA beds are used for the treatment of patients with "non-chronic" disabilities that are not service connected.

- (B) "*I hear that . . . veterans with non-service-connected ailments sign a pauper's oath to get into a Veterans Administration hospital, and the Veterans Administration makes no effort to check for fraudulent oaths.*"

The law does not require a pauper's oath. The law does permit the applicant to make a statement under oath to the effect that he cannot afford to pay for necessary treatment elsewhere. There is a considerable difference, as but a cursory thought will reveal. Further, the law specifies that the statement under oath shall be accepted by the

Veterans Administration as sufficient evidence of the applicant's inability to defray necessary expenses. There is contained on the form for application for hospital treatment or domiciliary care a statement of the penalty prescribed by statute for making false statements or claims, and the applicant, or if he is incompetent, his representative, is required to sign that he understands its import. In addition, the applicant must provide information concerning his financial status, including income, any savings or property holdings, and expenditures. If anyone will charge in writing that a Veterans Administration patient has committed fraud in the matter, the Veterans Administration will refer the case at once to the Department of Justice for any action deemed appropriate. The Veterans Administration is without authority to require verification of a war veteran's statement and is not responsible for criminal investigation or prosecution.

(C) *"I hear that . . . patients with non-service-connected disability are encouraged by the Veterans Administration to be dishonest in preparing applications for hospitalization by claiming pauperism."*

Criminal fraud of this kind is punishable, upon conviction, by fine or jail term or both, under Public Law 2, 73rd Congress, or other statute. I know of no such practice. Those who claim they do should, and have a duty to, present any evidence they have to the proper authorities. Every American citizen has an obligation to present valid information of perpetrated fraud so that the culprit may be prosecuted.

(D) *"I hear that . . . too many hospitals have been built by the Veterans Administration. Right now there are more than are needed to serve eligible veterans."*

This contention is completely refuted by the size of the waiting list of veterans seeking admission to Veterans Administration hospitals. The waiting list of veterans who are eligible for hospitalization and who have been certified by the Veterans Administration as needing hospitalization has averaged more than 17,000 every day in the week for many months. Further, the Veterans Administration has built no hospitals except as directed by authorizing statute and appropriation acts.

(E) *"I hear that . . . thousands of Veterans Administration hospital beds are standing empty because there are not enough patients to keep them filled."*

Veterans Administration hospital beds are not empty because of a lack of patients. The waiting lists of veterans seeking admission refute any such contention. Empty beds exist in Veterans Administration hospitals because of personnel recruitment difficulties or because of construction projects that are under way.

(F) *"I hear that . . . patients are kept in Veterans Administration hospitals far longer than necessary, longer than the normal stay in a non-Veterans Administration hospital."*

When attempts are made to compare the lengths of stay of patients in Veterans Administration hospitals with those in non-Veterans Administration hospitals, quite erroneous conclusions are likely to result. It is difficult, if not entirely illogical, to attempt to compare two dissimilar groups. I do not need to point out what constitutes the patient load of a non-Veterans Administration hos-

pital. The patient load of Veterans Administration hospitals is constituted, for the most part, of an aging population characterized by a greater frequency of multiple disabilities and chronic disorders that are less amenable to treatment and that require longer care. Approximately half of the patients in Veterans Administration hospitals are veterans of World War I or earlier periods of service with a median age of 61 years. The median age of World War II patients is 36 years. Other hospital systems do not present comparable situations, and therefore comparisons are of little significance. The chronic nature of the Veterans Administration patient load is indicated by the fact that over 51% of the Veterans Administration patients in hospitals on Jan. 31, 1953, had already spent more than a year on hospital rolls as Veterans Administration patients. This situation will become even more accentuated with the passing of time. There are other factors that influence the lengths of stay of patients in Veterans Administration hospitals that are not generally known. The accessibility of the patient and the hospital to each other, the nature of the service provided in the Veterans Administration hospital, and special requirements for medical evaluations having a bearing on the veterans' legal status all are of significance.

When a patient is hospitalized by the Veterans Administration, it is necessary not only to treat the disability that caused the patient's hospitalization but also to study, evaluate, and treat other concomitant disabilities the patient may have, since pension and compensation payments may be affected. When it is realized that compensation and pension payments for the fiscal year 1953 amounted to \$1,768,225,496, the importance of this phase of a veteran's hospitalization cannot be minimized. Further, it is common practice for a patient who enters a non-Veterans Administration hospital to have already had preliminary examinations and laboratory tests, and it is not usual to retain such a patient in the hospital until medical attention is no longer called for. The patient's treatment in this class is continued and completed after his release from the hospital by his doctor. All this cuts down the length of stay of the patient in the non-Veterans Administration hospital. The situation that prevails in patients cared for by Veterans Administration hospitals is not analogous. The hospital must start its medical work-up on its patients from the beginning and must carry it to completion, since only patients with service-connected conditions may be cared for on an outpatient basis.

Finally, the lengths of stay of Veterans Administration patients are influenced by the necessity, in many instances, for properly arranging for the patients' post-hospitalization care. The more aged patients may be afflicted with considerable residual disabilities upon conclusion of treatment. A moment's thought will demonstrate the necessity for retaining them in the hospitals until suitable arrangements can be effected for their post-hospitalization care.

(G) *"I hear that . . . Veterans Administration hospital construction is a waste of public money. They cost more to build per bed than do non-Veterans Administration hospitals."*

The "cost-per-bed" argument is illogical and completely misleading; however, even when this is used as a computation, the cost of Veterans Administration hos-

pitals has been found to compare favorably with non-Veterans Administration hospitals throughout the country. A far more reasonable comparison is cost-per-square foot of floor space or cost-per-cubic-foot of content. Because of the types of patients and the requirement that complete medical service must be rendered, Veterans Administration hospitals of necessity contain space and equipment for various kinds of therapy, space and equipment for rehabilitative measures, dining facilities, administrative offices, chapels, libraries, none of which provide beds, all of them requiring space. Considerations like these make "cost-per-bed" statistics completely misleading.

(H) *"I hear that . . . some patients who enter Veterans Administration hospitals have prepaid hospital insurance. They cannot properly sign a statement that they are unable to pay, and, besides, why does not the Veterans Administration try to collect that money?"*

Prepaid hospital insurance and a veteran's "ability to pay" are not antithetical or inconsistent. At the very most, medical insurance applies only to that part of medical care covered by the policy. It seldom covers all hospital costs, and it does not pretend to cover all costs in related areas. For example, hospitalization insurance does not usually cover all medical costs, physicians' fees, examinations, and so on, all of which are included in Veterans Administration hospital care.

Effort by the Veterans Administration to recover hospital insurance payments is not based on the belief that the insurance policy indicates a veteran's ability to pay. It is based on the Veterans Administration's authority to prescribe limitations for non-service-connected hospitalization. And, of course, should the Veterans Administration receive such payment, not one cent comes from the veteran or his family. Collection is made from a third party, the insurance company, or other person who is liable for such costs. The sheer truth is that the Veterans Administration is collecting such payments wherever and whenever actual liability exists. During the fiscal year 1952, the Veterans Administration secured for the federal government approximately \$3,050,000 in reimbursement for hospital care furnished veterans with non-service-connected disabilities, for which hospital care third parties were liable in contract or tort. But Veterans Administration collections of this sort in no way indicate the slightest departure from the lawful policy of dealing with patients having non-service-connected disabilities.

(I) *"I hear that . . . if the Veterans Administration would toss out all patients with non-service-connected disability and admit to its hospitals only service cases millions of dollars would be saved and the veterans with non-service-connected disability could pay for their treatment in private hospitals just as anyone else."*

Those who subscribe to the above opinion err in several major premises. The Veterans Administration could not, even if it would, toss out all patients with non-service-connected disability. The law prescribes the eligibility requirements of veterans for admission to Veterans Administration hospitals, for the treatment both of service-connected and of non-service connected disabilities. The

Veterans Administration administers the law, and its hospital program is predicated on its provisions. Only Congress can change the law, not the Veterans Administration. Assuming, however, that Congress did change the law and that veterans with non-service-connected disability were in fact barred from Veterans Administration hospitals, it does not follow that millions of dollars would be saved the American taxpayer. The bulk of such patients, which includes the tuberculous and neuropsychiatric patients, those with long-term chronic cases, and the indigents, would either have to be treated at public expense in other public-supported hospitals, with no consequent "savings of millions," or would receive no care at all, with consequent economic loss to the community, state, and nation.

(J) *"I hear that . . . Veterans Administration hospitals are full of a lot of 'frills' that produce useless 'coddling' of patients. Veterans Administration hospital methods should be streamlined in accordance with best medical opinion in the U. S."*

It has generally been found that those who hold that Veterans Administration hospitals are full of a lot of "frills" are uninformed as to the medical reason for and uses of the so-called frills. These so-called frills, when investigated, prove to be approved and accepted procedures in modern medicine, which has made giant strides in recent years. As for the Veterans Administration's hospital methods, the close collaboration of the hospitals with this country's leading medical schools has resulted in a practice of medicine in Veterans Administration hospitals that has received widespread commendation. Modern hospital treatment includes many items not formerly thought indispensable or even practicable.

(K) *"I hear that . . . Veterans Administration hospitals are an opening wedge for socialized medicine. The overwhelming majority of its patients with non-service-connected disability are depriving private physicians of legitimate fees."*

It would be well at this point to review the constitution of the Veterans Administration's hospital patient population as itemized under (A) above. Of the 104,820 patients, 14% were tuberculous, 48.3% were psychotic, 3.7% had other psychiatric disorders, and 4.7% had neurological disabilities. Well over a third of the tuberculous patients had been on the hospital rolls for more than 1 year, well over a third of the psychotic patients for more than 10 years, and over 50% of all patients hospitalized on Jan. 31, 1953, had already spent more than a year on hospital rolls as Veterans Administration patients. Further, nearly half of the World War I patients (hospitalized for all causes) had been on hospital rolls as Veterans Administration patients for more than 5 years and nearly one-fourth for more than 15 years. Over 47% of the World War II patients had been on hospital rolls for more than a year and 23% more than five years. I leave it to the judgment of the reader whether these patients could be expected to defray the costs of such long periods of hospitalization. It is reasonable to assume that were they excluded from the Veterans Administration hospitals they would turn elsewhere for treatment at public expense, burdening beyond their capacities the already overtaxed

state, city, and county institutions. Further, I believe it unrealistic to compare Veterans Administration medicine with socialized medicine as it exists in some countries.

(L) *"I hear that . . . what the Veterans Administration is really doing is hiding behind the law."*

This is a statement of opinion that is negative, unrealistic, and untrue. Properly stated: The Veterans Administration is obliged to and intends to obey the law at all times. It executes the law that was promulgated for it to follow. The Veterans Administration cannot, in the nature of things, "hide" behind anything or anybody, so far as public knowledge of its duties and its accomplishments is concerned. Ultimately, it is for the people of the United States to say what the Veterans Administration shall do; the Veterans Administration is merely the servant of the people to carry out their mandates as expressed in law.

(M) *"I hear that . . . veterans and their wives and children get free medical care in Veterans Administration hospitals. I have heard of cases in which the wives have their babies and the children have their tonsils removed at the taxpayer's expense."*

That just is not true and never has been. Wives, children, dependents, and relatives of veterans cannot and do not get medical service from the Veterans Administration, unless they themselves are eligible in their own right by reason of the fact that they themselves are veterans. The women patients being treated by the Veterans Administration are women veterans, and for them pregnancy per se does not entitle them to hospitalization by the Veterans Administration.

(N) *"I hear that . . . getting into a Veterans Administration hospital is a matter of favoritism. I have heard of a sick veteran waiting weeks and weeks to get into a hospital, whereas I have seen veterans from this same town admitted, and they did not look a bit sick to me."*

Admittance to a Veterans Administration Hospital is regulated by rules set up under the law. Emergency cases get top priority; service-connected cases get first call. Patients with non-service-connected cases must be legally eligible for treatment, must need hospital treatment, must be unable to pay for necessary care (permissibly evidenced by sworn statement of such inability), and must follow priority rules for admission. Patients who do not need treatment cannot be admitted except those who are brought in for a period of observation and examination for adjudication of claims. During the fiscal year of 1953, nearly a million applications for hospital care were received; 468,349 were admitted.

(O) *"I hear that . . . there is no humanity in Veterans Administration hospitals. Patients are handled like robots. I heard of a patient, seriously ill with tuberculosis, sent miles away for treatment instead of to the Veterans Administration hospital close to home where his wife and children could visit him. It is not humane."*

On the contrary, it is humane and sensible, too. The humane thing is to give this patient the best possible treatment for tuberculosis and to return him to his home and family in the shortest time possible. Sometimes a special-

ized tuberculosis hospital remote from his home is the answer to a problem of this sort; however, when it is medically feasible, the invariable Veterans Administration rule is to hospitalize veterans as close as possible to where their families live.

(P) *"I hear that . . . Veterans Administration hospitals are more like country clubs than places for sick persons. Why all this tennis and golf, all this basket weaving and shop work? I thought that the aim is to cure the patient."*

The aim is to cure the patient and to do this with the utmost speed consistent with good medical practice. In Veterans Administration hospitals, we treat the "whole man," not just the disease. Games, shop work, and other programs are done on doctors' prescriptions; in short they are part of various therapies aimed at helping to make the patient ready for discharge at the earliest possible time. "Getting well" involves far more than lying in bed and taking medicine. Veterans Administration medicine is modern medicine at its best. With thousands clamoring for admission, what possible motive could the Veterans Administration have for extending care unnecessarily?

(Q) *"I hear that . . . one veteran with a service-connected disability is treated by his private doctor, while another fellow is not. I heard of a veteran with a service-connected disability who went to his own hometown doctor, and then when the bill came due, had to pay out of his own pocket. Yet the other veteran did not pay. Does this make sense?"*

It is a matter of following simple, easy-to-understand rules. If a veteran with a service-connected disability needs medical treatment and treatment at a Veterans Administration facility is not convenient for the Veterans Administration, or for him, he may be granted permission to go to his own private physician, if he applies beforehand for the Veterans Administration's authorization. If a veteran does not apply to the Veterans Administration before going to his own doctor for treatment, he does not bring himself within the rules and risks paying out of his own pocket for the unauthorized private treatment.

(R) *"I hear that . . . Veterans Administration doctors are below par professionally. There is no incentive for a young doctor who is ambitious and eager to advance in his profession if he joins the Veterans Administration medical staff."*

Those who hold this view manifest an astounding ignorance of the professional staff of the Department of Medicine and Surgery of the Veterans Administration and the opportunities that are afforded its members. As of the last day of the fiscal year 1953, 2,210 physicians were receiving residency training under medical school supervision at 73 Veterans Administration hospitals and in 1 Veterans Administration mental hygiene clinic. There were 65 different medical schools affiliated with 85 Veterans Administration hospitals. The faculty members and other leaders in the profession not only share in the treatment of the Veterans Administration's patients but also engage in the education and research programs in operation throughout the Veterans Administration hospital system. Postgraduate and in-service training programs provide ample opportunities for educational and profes-

sional advancement. In those Veterans Administration hospitals situated at a distance from medical schools and institutions, leaders in medical and related fields of health have been able to bring to the staffs of these hospitals by lecture programs information concerning recent developments in a wide variety of fields of specialization. In fact, the success of Veterans Administration medicine has been closely related to the education and research activities, all essential factors in providing the veteran patient with the best possible medical treatment and hospital care. There is no better professional opportunity for a young, ambitious physician than in Veterans Administration medicine. It is not a get-rich-quick opportunity but one to grow by serving, to progress by accomplishment.

(S) *"I hear that . . . research into atomic medicine and other things out of place in a hospital are going on at the Veterans Administration. Why all this emphasis on isotopes? Why not do the things that actually help sick patients get well?"*

Atomic medicine is not out of place in a Veterans Administration hospital. Radioisotopes are used in clinical diagnosis and treatment as well as in medical research. The medical profession has learned their value in thyroid and suspected brain tumor cases, to mention only two of a large array of physical ailments susceptible to this new diagnostic and therapeutic procedure. Veterans Administration atomic medicine research is in the van of this kind of medical advance. In fact, the Veterans Administration is operating some 27 radioisotope laboratories. They complement the investigations of the Atomic Energy Commission. In addition, every advance made in a Veterans Administration laboratory is available to the entire medical profession, as is every other advance in other fields. It would be difficult to refute the proposition that Veterans Administration medicine has furthered inestimably general medical practice, or that it should do so.

(T) *"I hear that . . . in Veterans Administration hospitals they practice on patients with young and untried doctors who have insufficient experience."*

That is completely untrue. Resident physicians in training for specialties are the backbone of any well-run hospital. All are graduate doctors. All have completed an internship. All have been recommended by dean's committees in the foremost medical centers in the United States. Young, well-qualified, and ambitious physicians gladly enter Veterans Administration medicine because it puts them in daily touch with the latest and best in treatment and the most modern medical concepts and practice.

(U) *"I hear that . . . in a Veterans Administration mental hospital veterans disappear for good. They are just kept there and are never cured."*

It is realized that the length of hospitalization of a patient afflicted with a mental disorder may extend over a considerable period of time. I have pointed that out elsewhere in this article. Nevertheless, through the efforts of all the persons that comprise the hospital teams of Veterans Administration hospitals, large numbers of patients are being rehabilitated successfully to permit them to return to their families. To indicate the extent to which the Veterans Administration is succeeding in helping the psychotic patients and those afflicted with other psychi-

atric conditions, it is interesting to note that 2,700 of the former and 2,800 of the latter group were discharged from Veterans Administration hospitals during the last quarter of 1952. This evidences real accomplishment—worth far more to the country than it costs.

(V) *"I hear that . . . the Veterans Administration lets mental patients go home when the family insists on it—then later the released mental patient kills somebody. Why do Veterans Administration hospitals release persons like that to become public menaces?"*

A patient afflicted with a mental disorder cannot be legally kept in a Veterans Administration hospital against his will unless he has been legally committed by an authority of proper jurisdiction. A person who has not been committed is a voluntary patient; if he insists on leaving, the Veterans Administration medical authorities cannot legally detain him. However, every effort is made to collaborate with family and civil officials to insure commitment when deemed necessary for the safety of the patient or the public. Veterans Administration hospitals are not asylums.

(W) *"I hear that . . . Veterans Administration hospitals stage 'raids' in their local areas to snatch away doctors and nurses who may be badly needed where they are."*

The Veterans Administration considers its hospitals as integral parts of the communities in which they are located and, as such, strives for a mutual spirit of good will and cooperation between Veterans Administration and non-Veterans Administration medical institutions in any given area. The "raiding" of local areas as a method of obtaining doctors and nurses for the staffing of new Veterans Administration hospitals is contrary to the Veterans Administrations hiring policy, and any such charge is not supported by the facts. The Veterans Administration's hospital system is national in scope. Doctors and nurses who express their interest in serving with the Veterans Administration indicate their geographical preferences for assignments. Vacancies are filled by transfers from other stations and by new appointments, meeting the desires of the new applicants as to location insofar as it is possible.

(X) *"I hear that . . . a lot of these patients with so-called non-service-connected disability in Veterans Administration hospitals are alcoholics who are admitted just so they can 'sober up.'"*

The same principles and procedures govern the admission of these veterans to Veterans Administration hospitals as apply to all veterans. When it is medically determined that a veteran is in need of hospital treatment, he is admitted, if he is legally entitled to Veterans Administration care and a bed is available. Unless he meets all criteria, he is not admitted.

(Y) *"I hear that . . . Veterans Administration doctors are older physicians who could not succeed in private practice and join the Veterans Administration for snug berths."*

This is the opposite side of the "green young doctor" canard. It is, of course, just as false. As of June 30, 1953, 1,684 out of a total of 4,160 full-time Veterans Administration doctors held memberships in various of the several

specialty boards. The progressive medical atmosphere of the medical department of the Veterans Administration that pervades through all of its echelons completely refutes this contention.

(Z) "I hear that . . . veterans whose illness has nothing to do with their service in the armed forces are no more entitled to free Veterans Administration hospitalization than anyone else. After all, we are all citizens. Why should the Veterans Administration discriminate in favor of one group?"

The Veterans Administration discriminates in favor of neither group, veteran or nonveteran. It applies the laws as they have been enacted by Congress, which express but the will of the people as made manifest through their elected representatives. From colonial days, the citizenry of this country have offered its resources to the veterans of this nation and have expressed its interest in meeting their medical needs. Until this concept of the people is relinquished through legislative expression, the Veterans Administration will continue to administer the laws as they exist today.

I think enough has been written, although briefly, to sustain my thesis that many prevalent notions about Veterans Administration medicine have no basis in fact and contribute nothing to better public understanding of the very real problems, the truly hard labors, and the demonstrable achievements of the Department of Medicine and Surgery of the Veterans Administration. In bringing this topic to the attention of my fellow physicians, I am animated by the hope that all of us may join hands professionally in an endeavor, if not to wipe out these and other misconceptions, at least to help minimize their ill-effects as far as we may. To silence the malicious rumor monger is an impossible task but to shine a little truthful light into dark corners, where darkness exists only because no one has yet bothered to come with a light, it seems to me, offers a real opportunity to medical men of good will everywhere. And the gainers will be the veterans, the hospital patients, the physicians, and all the tax-paying citizens of our country.

COMMENT ON ADMIRAL BOONE'S ARTICLE

In May, 1953, the foregoing article was submitted for publication by Adm. Joel T. Boone, Chief Medical Director of the Veterans Administration. On May 27 the article was rejected, since it was felt that it contained a considerable amount of information already well known to the medical profession. In addition, the subject of medical care and hospitalization of veterans with non-service-connected disabilities was scheduled for consideration by the Board of Trustees and the House of Delegates of the American Medical Association at its annual meeting to be held in June. The manuscript has again been submitted by Admiral Boone, with the request that it be published in the light of the new policy, with respect to veterans' medical care, which was established by the Association at its meeting last June.

In view of the controversial nature of some of the items discussed, Admiral Boone's article is published as submitted, together with a critique of some of the items discussed. This critique was prepared by those who are closely associated with the interpretation of the policies of the American Medical Association concerning medical care for veterans.—ED.

The above article was rejected for publication in May, 1953. Since that date, and following the action of the House of Delegates in June, 1953, with respect to vet-

erans' medical care, Admiral Boone and others are reported to have protested the action of the Editor in refusing publication of his manuscript. Copies of the article were sent to members of the House of Delegates of the American Medical Association and to other officers and officials. In addition, the Association was criticized before committees of Congress for its action. At the request of the author of the article, it was published in the appendix of the Congressional Record by Mrs. Edith Nourse Rogers, chairman of the House Committee on Veterans Affairs.

Despite the fact that the article has comparatively little bearing on the basic elements involved in the present position of the Association with respect to veterans medical care, it seems well to discuss it briefly to dispel the confusion that it may create.

It is possible that the alleged "misconceptions" referred to in the article do exist in some quarters. However, it is certain that the majority of them are not prevalent in medical circles. For the most part, they either are the result of statistical manipulations or consist of issues that have been amplified in order to provide a medium for publicizing well-known information concerning the Veterans Administration and its medical program. In his paper Admiral Boone poses 26 questions that he professes to answer. In some instances his statements are completely accurate and relate to matters that have never been questioned by the medical profession. In other instances, however, his remarks are more confusing than explanatory. It is felt that 10 of the 26 points raised require further explanation.

To simplify this analysis, the various points in question will be repeated.

(A) "I hear that . . . 90% of patients in VA hospitals (in some statements the percentage used was 80% or two-thirds) are being treated for non-service-connected disabilities."

In discussing this statement a series of statistics are presented which are intended to minimize the extent of non-service-connected medical care that is currently being provided by the Veterans Administration.

At the outset it should be recognized that as in all discussions of this type, irresponsible statements have been made by persons on both sides of the question. These most frequently occur when statistics are involved. In most instances in which substantial variations have occurred they have resulted from the fact that the persons concerned have been talking about entirely different things. As an example, the figures presented by Admiral Boone under item A refer to the number of patients in Veterans Administration hospitals as of a given date, i. e., Jan. 31, 1952. There can be no question but that the figures here presented and the percentage of service-connected disabilities (35.6%) are completely accurate. It is not sufficient, however, to consider only these figures.

Persons who have referred to the non-service-connected load as consisting of from 80 to 90% of the total Veterans Administration medical program were undoubtedly speaking in terms of the total number of patients admitted or discharged in a given year. According to the figures of the Veterans Administration its admissions for

the calendar year 1951 totaled 509,720. Of this number, 84.6% were non-service-connected cases. It is clear, therefore, that Admiral Boone and the persons who have alleged a higher percentage of non-service-connected cases may both be correct, depending upon whether they were talking about total admissions for a given year or the patient load as of a given day.

In answer to this same question an attempt is made in the article to explain away the remaining 64.4% of the VA patient load (non-service-connected cases) as of a given day: Jan. 31, 1952. It is indicated that 11.4% of these patients were veterans discharged from military service with service-connected disabilities who are now receiving care for other disabilities. Falling within this group are those veterans who have some type of service-connected disability for which hospitalization is not now required. These men have contracted some additional disease or disability completely unrelated to military service for which they are now being hospitalized. It is obviously unfair to refer to the disabilities of this group as service connected. The remaining war veterans (52.4%) are acknowledged in the article as being treated for non-service-connected injury or disabilities.

As indicated, some of these persons are suffering from tuberculosis, neuropsychiatric disorders, or chronic diseases. They are, nevertheless, of non-service-connected origin. In addition, some may or may not be entitled to receive a "pension." The diseases or disabilities for which medical care is provided nevertheless have no relationship to military service. The fact that a limitation of income is imposed before a pension can be paid is of importance only as one element in determining whether a veteran may or may not be able to pay the cost of his own medical care.

(B) "*I hear that . . . veterans with non-service-connected ailments sign a pauper's oath to get into a Veterans Administration hospital, and the Veterans Administration makes no effort to check for fraudulent oaths.*"

As has been stated on many occasions in discussing the position of the Association in this matter, it is not our desire to comment on alleged maladministration by the Veterans Administration, the ability or inability of individual veterans to pay, or the extent to which the use of the Veterans Administration Form 10-P-10 is being abused. It should be noted on this point that recently the Veterans Administration devised a new form and promulgated new regulations that will require the veteran to supply additional information regarding his financial status. This change in itself is an admission that more stringent regulations were necessary.

There has been no change in the basic law since the date the article in question was written. Therefore, questions are bound to be asked as to the source of the authority of the Veterans Administration, which they have not seen fit to exercise during the many years since this legislation was originally enacted.

(D) "*I hear that . . . too many hospitals have been built by the Veterans Administration. Right now there are more than are needed to serve eligible veterans.*"

In answering this contention, reference is made to the number of veterans currently awaiting admission to Veterans Administration hospitals. In this connection it should be noted that as of Nov. 30, 1953, there were 17,512 veterans awaiting admission to VA installations. Of this number only one was suffering from disabilities of service-connected origin. Thus, in determining whether too many hospitals have been built by the Veterans Administration, it is necessary to consider the size of existing facilities, the number of patients with non-service-connected cases receiving medical care, and the patient waiting list, in the light of the original purpose and intent of the law.

There can be no doubt that the primary mission of the medical program of the Veterans Administration is to care for veterans with service-connected disabilities. Medical care and hospitalization was authorized only for patients with non-service-connected cases because of a surplus of hospital beds in 1923. The basic legislation authorizing the present program stipulates that medical care and hospitalization in non-service-connected cases shall be provided only within the limits of existing facilities. For many years the number of Veterans Administration hospital beds has been more than adequate to take care of the service-connected patient load. Consequently, VA hospitals that have been built during the past several years and those in the planning state must be intended primarily for non-service-connected medical care. Anyone interested, therefore, in discussing veterans' medical care, within the framework of existing law, is justified in the statement that too many VA hospitals have been built.

(F) "*I hear that . . . patients are kept in Veterans Administration hospitals far longer than necessary, longer than the normal stay in a non-Veterans Administration hospital.*"

While it has not been alleged by the medical profession that patients are kept in Veterans Administration facilities longer than necessary, it is proper to compare the length of stay in VA facilities with the length of stay in nonfederal facilities. According to the figures of the Veterans Administration, the average VA hospital stay for a patient receiving general medical and surgical care is 30.4 days, compared to 7.5 days for a patient with similar disabilities in a civilian hospital. In private hospitals during a year's time each bed is utilized to provide care for 35.4 patients, compared to each VA general medical and surgical bed, which provides care for only 8.9 patients.

(H) "*I hear that . . . some patients who enter Veterans Administration hospitals have prepaid hospital insurance. They cannot properly sign a statement that they are unable to pay, and, besides, why does not the Veterans Administration try to collect that money?*"

Much has been said concerning the right and authority of the Veterans Administration to recover private health insurance benefits to which hospitalized veterans are entitled. As has been indicated before, the administrative practice of the Veterans Administration in accepting for hospitalization veterans suffering from non-service-connected disabilities who have prepaid health insurance is, to say the least, difficult to rationalize.

Administrative regulations authorizing the collection of such benefits by the Veterans Administration are inconsistent with previous pronouncements that it is not possible to investigate the statement of the veteran concerning his inability to pay hospital expenses. Either this contention is true and his statement must be accepted without question or the authority cited in Section 6 of Public Law No. 2, 73rd Congress, is sufficient to permit a more complete determination of a veteran's actual ability to pay.

By interesting itself in this one particular aspect of the veteran's financial status, the Veterans Administration has, in effect, evoked a limited means test. If the desire of the Veterans Administration is really to mitigate the financial burden imposed on the taxpayers of their country by the operation of the Veterans Administration hospital program, it would seem to be more easily accomplished by adherence to the original intent of the congress, i. e., to limit hospital care to veterans with service-connected disabilities and to veterans with non-service-connected disabilities who are truly unable to pay for their care and for whom beds are available.

- (I) "*I hear that . . . if the Veterans Administration would toss out all patients with non-service-connected disability and admit to its hospitals only service cases millions of dollars would be saved and the veterans with non-service-connected disability could pay for their treatment in private hospitals just as anyone else.*"

While it is true that the Veterans Administration could not on its own initiative eliminate medical care and hospitalization for veterans with non-service-connected disabilities, it is certainly not improper for an individual citizen or for an organization such as the American Medical Association to attempt to effect a curtailment of the present medical care program through appropriate amendments to existing law. Efforts by certain officials of the Veterans Administration to prevent any change in existing legislation is in actuality "lobbying" and highly improper.

With respect to the shifting of the tax burden it is true that the transfer of veteran patients with non-service-connected disabilities from federal to local hospitals might mean an increase in local tax burden. It would, however, also mean a decrease in the national tax burden. Most persons would not quarrel with such a result, since it is generally recognized that, the closer to home tax funds are spent, the more efficiently they are used.

- (K) "*I hear that . . . Veterans Administration hospitals are an opening wedge for socialized medicine. The overwhelming majority of its patients with non-service-connected disability are depriving private physicians of legitimate fees.*"

The suggestion that the present veterans medical care program is an opening wedge for socialized medicine is not without foundation in fact. Consideration of this proposition cannot, however, be properly limited to a discussion of its economic aspects but rather should be enlarged to include consideration of the basic philosophy of the present program. Attention is invited to the state-

ment presented by Dr. Walter B. Martin, President-Elect of the American Medical Association, in his appearance before the committee of the House Veterans' Affairs Committee on July 13, 1953. At that time, Dr. Martin stated, in part:

The gradual expansion and intervention of the federal government into the affairs of local governments and individuals during the past decade has apparently confused some people as to the proper responsibilities of each. Continued federal encroachment into private affairs cannot be advocated logically and consistently by those who, at the same time, voice their opposition to socialism. It is time to reorient our thinking and to recognize the dangers which threaten the foundation of our basic philosophy before we reach the point of no return in terms of collective socialistic planning. It would be unfortunate indeed, if, in our efforts to reward patriotism, we were responsible for the creation of a system of government medicine, against the will of the majority, with its inevitable deterioration in the quality of medical care for veterans and non-veterans alike.

In discussing this point the article attempts to inject an economic motive for the policy of the medical profession. This obviously cannot be done successfully. Doctors who treat VA patients now are paid for their services; doctors who treat state or county welfare patients frequently are not. In other words, the medical profession, as a whole, will lose rather than gain economically by this policy. If all of the patients with non-service-connected conditions are unable to pay, as consistently alleged by proponents of the present program, they will not be able to pay a private physician.

- (L) "*I hear that . . . what the Veterans Administration is really doing is hiding behind the law.*"

The comments made in connection with questions (B) and (I) are also germane to this item.

- (W) "*I hear that . . . Veterans Administration hospitals stage 'raids' in their local areas to snatch away doctors and nurses who may be badly needed where they are.*"

Although it is probably improper to refer to the attempts of the Veterans Administration to acquire additional personnel as "raids," it is nevertheless true that the expanding VA medical program has contributed to an artificial shortage of medical and allied health personnel in some areas. For every increase in federal hospital beds, more medical personnel is needed—physicians, dentists, nurses, laboratory technicians, and others. To maintain training programs at these hospitals, more interns and residents are needed. In setting salary scales for this personnel the federal hospital is not limited by its income. It has no need to observe the prevailing wage scale in the community. It does not need to consider what the patient is able to pay for hospital service. As a result the federal hospital can outbid the nongovernmental hospital for medical and health personnel and for medical trainees. The nongovernmental hospital can meet the federal bid only by increasing the patient's hospital bill.

In this connection it is interesting to note the following statement which appears in the annual report of the Veterans Administration for 1952: "In an attempt to attract qualified personnel, approximately 13,000 brochures de-

scribing VA medical service have been forwarded to individuals and to 1,035 hospitals having approved residency training programs."

As a specific example of local reactions reference is made to a resolution adopted within the last month by the Cook County Board of Illinois, demanding that the draining of health personnel by the VA stop. The resolution was sponsored by Commissioner John J. Duffy, who said that 95% of the nurses trained by Cook County leave for jobs in veterans hospitals and other federal and private institutions.

(Z) "I hear that . . . veterans whose illness has nothing to do with their service in the armed forces are no more entitled to free Veterans Administration hospitalization than anyone else. After all, we are all citizens. Why should the Veterans Administration discriminate in favor of one group?"

"The Veterans Administration discriminates in favor of neither group, veteran or nonveteran. It applies the laws as they have been enacted by Congress, which express but the will of the people as made manifest through their elected representatives."

In reviewing the testimony, comments, and remarks of representatives of the Veterans Administration before congressional committees and in public appearances, it is questionable that they have adhered solely to the role of administrators of the law. Attempts to discredit individuals and organizations that are interested in changing that law through proper and recognized democratic processes are completely unjustified and improper.

As indicated in the initial paragraphs of this critique, it is not the purpose of the medical profession to discuss the veterans medical care program on the basis of the questions posed in Admiral Boone's article. The medical profession is not primarily concerned with alleged maladministration by the Veterans Administration nor is it discussing the Veterans Administration Form 10-P-10, the ability of individual veterans to pay or the number of "chiselers" in VA hospitals. Rather it is imperative that consideration be confined to the really fundamental questions, which include:

1. Just what is the justification for providing "free" medical care to veterans with non-service-connected disabilities?
2. What is the present system doing to the civilian medical teaching program?
3. Is it creating an artificial shortage of health personnel?
4. Is it lowering the standards and increasing the costs of health care for the general public?
5. Is it contributing to an overlapping of federal medical facilities?
6. Is the huge expense and resulting tax burden justified? and
7. Do the veterans of this country really want this type of handout?

The issue involves basic principles that concern not just veterans and physicians but all of the American people. In a nation with a large, growing, and aging veteran population, there must be a clarification of just how far the federal government should go in assuming responsibility for the medical care of those citizens who once wore a military uniform. The ultimate answer will have a vitally important effect on the future health, economic welfare, and social philosophy of the entire nation.

COUNCIL ON PHARMACY AND CHEMISTRY

The following abstracts of recent nomenclature decisions of the Council is authorized for publication.

R. T. STORMONT, M.D., Secretary.

NEW GENERIC AND BRAND NAMES RECOGNIZED BY THE COUNCIL

The Council collaborates with manufacturers in the selection of generic and brand names for marketed drug preparations presented for acceptance and also for new products still under development or clinical trial. The last reports on such names appeared in *THE JOURNAL*, Oct. 31, 1953, page 801, and Dec. 19, 1953, page 1447.

The following abstract lists the generic designation, the chemical name, where necessary for information, and the brand name or names simultaneously recognized for the stated firms. In general, a generic name should bear recognizable relation to the chemical name and conform as closely as consistent with brevity and practicality to existing systems of scientific nomenclature. The chief requirement for a brand name is that it should not be therapeutically suggestive.

The listing of a brand name is not to be construed as indicating Council acceptance of the product itself. Products accepted for inclusion in New and Nonofficial Remedies are announced separately.

ALSEROXYLON for the fractionally purified extract of *Rauwolfia serpentina* (Benth): Rauwiloid (Riker Laboratories, Inc.).

ALSEROXYLON-ALKAVERVIR for a mixture of partially purified extracts of *Rauwolfia serpentina* and *Veratrum viride*: Rauwiloid-Veriloid (Riker Laboratories, Inc.).

AMINITROZOLE for 2-acetyl-amino-5-nitrothiazole: Pleocide (Sharp & Dohme, Division of Merck & Co., Inc.).

AMINOPTERIN SODIUM for the sodium salt of 4-aminopteroyl-glutamic acid.

AZAPETINE for 6-allyl-6,7-dihydro-5H-dibenz [c,e] azepine: Ilidar (Hoffmann-LaRoche, Inc.).

BACITRACIN-POLYMYXIN B for a mixture of bacitracin and polymyxin B sulfate: Polycin (Pitman-Moore Company, Division of Allied Laboratories, Inc.).

BENZATHINE PENICILLIN G for N,N'-dibenzylethylenediamine dipenicillin G: Bicillin (Wyeth Laboratories, Inc.); Permapen (Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.).

BENZTROPINE METHANESULFONATE for tropine benzohydril ether methanesulfonate: Cogentin Methanesulfonate (Sharp & Dohme, Division of Merck & Co., Inc.).

BUCLIZINE HYDROCHLORIDE for 1-(p-chlorbenzhydryl)-4-(p-tert-butylbenzyl)-diethylenediamine dihydrochloride: Vibazine Hydrochloride (Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.).

CRYPTENAMINE ACETATE for the acetate of a mixture of ester alkaloids obtained by the nonaqueous extraction of *Veratrum viride*: Unitensin Acetate (Irwin, Neisler & Company).

CYCRIMINE HYDROCHLORIDE for 1-phenyl-1-cyclopentyl-3-piperidino-1-propanol hydrochloride: Pagitane Hydrochloride (Eli Lilly & Company).

ETHAVERINE HYDROCHLORIDE for the ethyl analogue of papaverine hydrochloride, 6,7-diethoxy-1-(3',4'-diethoxybenzyl)isoquinoline hydrochloride: Papetherine Hydrochloride (Lincoln Laboratories, Inc.).

HEXYLCAINE HYDROCHLORIDE for 1-cyclohexylamino-2-propyl benzoate hydrochloride: Cyclaine Hydrochloride (Sharp & Dohme, Division of Merck & Co., Inc.).

IOTHIOURACIL SODIUM for the sodium salt of 5-iodo-2-thiouracil: Itrumil Sodium (Ciba Pharmaceutical Products, Inc.).

LAUDESIUM METHYLSULFATE for Decamethylene- α , ω -bis-[1-(3',4'-dimethoxybenzyl)-1,2,3,4-tetrahydro-6,7-dimethoxy-2-methyl-isoquinolinium methosulphate]: Laudolissin Methylsulfate (E. Fougera & Company).

METHOXSALEN for 8-methoxypsoralen: Oxsoralen (Paul B. Elder Company).

METHSCOPOLAMINE BROMIDE for epoxytropine tropate methylbromide: Pamine Bromide (The Upjohn Company).

NORTESTERIONATE for 19-nortestosterone cyclopentylpropionate: Nortestonate (The Upjohn Company).

PIPERAZINE CITRATE: Antepar Citrate (Burroughs Wellcome & Company, Inc.).

RESERPINE for the pure form of that alkaloid as derived from *Rauwolfia serpentina* (Benth): Serpasil (Ciba Pharmaceutical Products, Inc.).

SODIUM RADIO-IODIDE (I^{131}) for the sodium salt of radio-active iodine having that atomic number.

STREPTODUOCIN for a mixture of equal parts of streptomycin and dihydrostreptomycin sulfates: Distreptocin (Eli Lilly & Company); Distrycin (E. R. Squibb & Sons); Duostrep (Sharp & Dohme, Division of Merck & Co., Inc.).

TRIMETHAPHAN CAMPHORSULFONATE for *d*-3,4-(1',3'-dibenzyl-2'-ketoimidazolido)-1,2-trimethylenethiophanium *d*-camphorsulfonate: Arfonad Camphorsulfonate (Hoffmann-LaRoche, Inc.).

VIOMYCIN SULFATE for the sulfate salt of an antibiotic produced by selected strains of an actinomycete to which the names *Streptomyces puniceus* and *Streptomyces floridiae* have been applied: Vinactane Sulfate (Ciba Pharmaceutical Products, Inc.); Viocin Sulfate (Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc.).

ZINCHLORUNDESAL: Salundek (New) (Wallace & Tiernan Inc.).

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., Secretary.

Prescription Products Division of The Borden Company, New York.

Mull-Soy, Powdered

Ingredients: Soy flour, soy oil, sucrose, dextrose, calcium phosphate, soy lecithin, and salt.

Analysis (submitted by manufacturer).—The following analyses are for both powder and reliquefied.

	Powder, Reliquefied,*	
	%	%
Total Solids	96.5	12.8
Moisture	3.5	87.2
Ash (Minerals)	5.4	0.7
Including:		
Calcium	1	0.13
Phosphorus	0.9	0.11
Iron	0.003	0.0004
Soy Fat	30	4
Soy Protein	24	3.1
Carbohydrate (available)	35.9	4.5
Crude fiber	1.2	0.2

* Reliquefied: 1 level tablespoonful (8.4 gm., 43.5 calories) Mull-Soy, Powdered, and 2 fl. oz. of water.

Calories.—5.2 per gram; 43.5 per level tablespoonful, 20 per reconstituted fluid ounce.

Use.—As a hypoallergenic food for infants, children, and adults suffering from milk allergies.

Comstock Canning Corporation, Newark, N. Y.

Comstock Brand Dietetic Pack Peas and Carrots

This product consists of peas (Famous variety) and carrots (Red Cored Chantenay) packed in water without any added salt.

Analysis (submitted by manufacturer).—Total solids 9.2%, moisture 90.8%, ash 0.29%, fat extract 0.2%, protein 2.1%, crude fiber 1.4%, available carbohydrate 5.1%, and sodium 10.1 mg./100 gm.

Calories.—0.30 per gram; 8.5 per ounce.

Use.—For use in low sodium and other therapeutic diets.

H. J. Heinz Company, Pittsburgh.

Heinz Junior Soup, Split Peas, Vegetables, and Ham

Ingredients: Ham stock, split peas, smoked ham, potatoes, carrots, whole milk powder, wheat flour, celery, salt, dehydrated onion, and sufficient water to prepare properly.

Analysis (submitted by manufacturer).—Total solids 18.03%, moisture 81.97%, ash 1.31%, fat (by acid hydrolysis) 2.15%, protein ($N \times 6.25$) 3.97%, crude fiber 0.23%, total sugar as sucrose 1.35%, natural reducing sugar 0.62%, acidity (as acetic) 0.13%, salt 0.84%, and starch 9.02%.

Vitamins and Minerals	Per 100 Gm.
Vitamin A activity.....	116.0 I.U.
Thiamine	92.0 mcg.
Riboflavin	48.0 mcg.
Ascorbic acid	1.1 mg.
Niacin	0.51 mg.
Calcium	29.0 mg.
Phosphorus	87.0 mg.
Iron	0.66 mg.
Copper	0.11 mg.

Calories.—0.78 per gram; 21.8 per ounce.

Use.—For use in the feeding of older infants and young children.

Armour and Company, Chicago, packer.

Gerber Products Company, Fremont, Mich., distributor.

Gerber-Armour Strained Liver and Bacon

This product is made from meats (trimmed of fat, sinews, and connective sheaths) with added salt, prepared under inspection of the Meat Inspection Division of the U. S. Department of Agriculture.

Analysis (submitted by manufacturer).—Total solids 22.7%, moisture 77.3%, ash 1.6%, fat 6.0%, protein ($N \times 6.25$) 13.3%, carbohydrates 1.8%, crude fiber 0.06%, and salt 0.4%.

Vitamins and Minerals	Mg. per 100 Gm.
Thiamine	0.050
Riboflavin	2.31
Niacin	6.70
Pyridoxine (Vitamin B ₆).....	0.264
Phosphorus	240
Calcium	20
Iron	37

Calories.—1.17 per gram; 33.2 per ounce.

Use.—For use in the feeding of infants, convalescents, and others requiring a soft diet.

Gerber-Armour Chopped Liver and Bacon

This product is made from meats (trimmed of fat, sinews, and connective sheaths) with added salt, prepared under inspection of the Meat Inspection Division of the U. S. Department of Agriculture.

Analysis (submitted by manufacturer).—Total solids 29.1%, moisture 70.9%, ash 1.6%, protein 19.4%, fat 6.8%, crude fiber 0.06%, carbohydrates 1.3%, and salt 0.2%.

Vitamins and Minerals	Mg./100 Gm.
Thiamine	0.0483
Riboflavin	2.17
Niacin	10.8
Pyridoxine (Vitamin B ₆).....	0.417
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THE JOURNAL

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THE TREATMENT OF GASTRIC ULCER

The two most controversial points regarding the treatment of gastric ulcer still revolve about the question whether medical or surgical treatment is best and whether all ulcers of the stomach in contrast to those of the duodenum should be considered potentially malignant. The questions are interrelated. The first controversy has been raging for over 50 years chiefly because no general rule can be applied to all gastric ulcers. In the last analysis the treatment of choice depends on the individual findings and to a certain extent on the knowledge and skill of the doctor treating the patient.

Dragstedt¹ has reviewed the question whether gastric ulcer is caused by hyperfunction or dysfunction of the gastric antrum. He draws attention to important differences between gastric and duodenal ulcers. Although a preponderance of patients with duodenal ulcer are men, the sex distribution of those with gastric ulcer is about equal. Stigmas of nervous tension are frequently present in those with duodenal ulcer and frequently absent in those with gastric ulcer. Swynnerton and Tanner² state that duodenal ulcers occur predominantly in young adults with thick hypersecreting gastric mucosa and gastric ulcer in middle-aged persons with normal or thinning mucosa and normal or decreased gastric acidity. Excision of the pyloric antrum in patients with duodenal ulcer is followed by a gastrojejunal ulcer, but in patients with gastric ulcer this operation is followed by healing. Although this is in harmony with the view that gastric ulcer may be due to antral hyperfunction and although in patients with gastric ulcer gastric hypersecretion results in excessive and prolonged liberation of the gastric secretory hormone gastrin, Dragstedt concludes that we

still do not have enough evidence that a hypersecretion of antral origin is present in all patients with gastric ulcer.

Orellana³ reported that medical treatment was effective in 84% of a large series of patients with gastric ulcer and that in the 16% requiring operation the mortality was high. Swynnerton and Tanner, on the other hand, concluded that the healing of gastric ulcers by medical treatment was followed by recurrence in 75%, the incidence of recurrences being higher in those under than in those over 50 years of age. They stated that for economic and clinical reasons there has been a tendency to treat chronic gastric ulcers surgically, and in 80% of their series surgical treatment was successful. They listed as absolute indications for operation (1) perforation, (2) some cases of gastric hemorrhage, (3) obstruction with hour glass deformity or pyloric stenosis, and (4) suspected malignancy (which in their opinion included all ulcers of the greater curvature and most prepyloric ulcers), and they considered operation elective for patients in whom medical treatment fails. Partial gastrectomy is the treatment of choice for chronic gastric ulcers, but before it is advised they consider the duration of the disease, severity of the symptoms, presence of intercurrent disease, and operative risk, and they stress the fact that this operation does not prevent the subsequent development of gastric carcinoma.

The differentiation of benign and malignant gastric ulcers is difficult without a biopsy. Boudreau⁴ stated that judgments based on the location of the lesion have proved unreliable because both benign and malignant lesions have been found in all areas of the stomach. The size of the lesion cannot be depended on for diagnosis, but carcinoma must be suspected if after three or four weeks of medical treatment the crater as seen roentgenologically increases in diameter or even if it fails to become smaller. The age of the patient is also unreliable as a criterion, because ulcers in patients over 50 are not necessarily malignant and those in patients under 50 are not necessarily benign. Hemorrhage and perforation are much commoner in patients with benign than in those with malignant ulcers. Gastroscopy and improvements in cytological diagnosis offer hope for more accurate diagnoses. There is a growing belief that benign ulcers do not undergo malignant degeneration as formerly thought but that ulcers found to be malignant were malignant from the start. Boudreau's study shows the fallibility of absolute dependence on any clinical feature in the differential diagnosis of benign and malignant gastric ulcers, and the authors conclude: "the proper diagnosis when possible can be arrived at only by the use of many clinical findings each of which is of uncertain significance but whose combined value may permit a reasonably accurate decision." Eusterman⁵ in commenting on this conclusion said, "In contrast to the contention of some surgeons that there is at least a 35% error in distinguishing a benign from a malignant ulcerating gastric lesion is the recent opinion of several authorities that such error should not exceed 6%, provided all symptoms and signs,

1. Dragstedt, L. R.: Is Gastric Ulcer Due to Hyperfunction or Dysfunction of the Gastric Antrum? *Surg., Gynec. & Obst.* 97: 517-519 (Oct.) 1953.

2. Swynnerton, B. F., and Tanner, N. C.: Chronic Gastric Ulcer: A Comparison Between a Gastroscopecally Controlled Series Treated Medically and a Series Treated by Surgery, *Brit. M. J.* 2: 841-847 (Oct. 17) 1953.

3. Gastroduodenal Ulcers, *Foreign Letters (Ecuador)*, J. A. M. A. 151: 1127 (March 28) 1953.

4. Boudreau, R. P.; Harvey, J. P., Jr., and Robbins, S. L.: Anatomic Study of Benign and Malignant Gastric Ulceration, *J. A. M. A.* 147: 374-377 (Sept. 29) 1951.

5. Eusterman, G. B., in the 1952 Year Book of Medicine, Chicago, the Year Book Publishers, Inc., 1952, editor's note, p. 587.

together with the effect of adequate medical treatment in doubtful cases, are properly evaluated by those with specialized skill."

The unceasing flow of papers on this subject shows that there is no unanimity concerning the effectiveness of any one method of treatment. Nevertheless, nearly all gastric ulcers will respond to rest in bed, regular meals, and drugs to suppress or neutralize gastric acidity. The dictum that all gastric ulcers should be removed when the diagnosis is established is rapidly losing its authority, as most internists and surgeons favor at least a preliminary trial of medical management during a few weeks or months and some favor continuing medical treatment. Gastric ulcers of the pylorus or the distal half of the stomach usually can be readily resected without a high mortality risk or troublesome postgastrectomy symptoms. Juxta-esophageal or high lying gastric ulcers are less readily resected; therefore, they are frequently given longer periods of trial with a medical regimen or treated surgically by resection of the distal half of the stomach, leaving the ulcer in place. Total or near total gastrectomy is usually employed only when failure of healing follows conservative operation and malignancy is suspected. Whenever prolonged medical treatment is employed a regular follow-up program of roentgenologic and other studies should be instituted lest early evidence of development of carcinoma be overlooked.

DETECTION OF HEPATIC METASTASES

The presence or absence of liver metastases is often of major importance in determining the treatment or the prognosis of malignant neoplastic disease. A method for detecting and localizing hepatic metastases by radioactive isotopes has recently been described by Stirrett and his associates.¹ In their hands, this method has proved to be more reliable than needle biopsy and liver function tests, the only laboratory procedures currently available to the clinician.

The method consists of the use of radioactive iodinated human serum albumin as the tracer agent and of a scintillation counter to detect gamma radiation from the radioactive iodine (I^{131}). The patient receives a single intravenous dose of 300 μ c of the radioactive albumin, and 24 hours later a survey is made at coordinate points over the thorax and abdomen. The values obtained are expressed in terms of per cent of an arbitrarily chosen reference point. A value at a particular point higher than that which would be expected from results obtained in a series of 20 carefully selected control patients is interpreted as indicating a neoplastic growth.

Stirrett and his associates have reported the results of hepatic radioactive surveys in 240 patients with primary neoplasms. Of these, 187 were shown to be free of metastases by inspection and palpation of the liver at surgery, by microscopic examination of biopsy specimens, and by clinical evaluation. Preoperative hepatic radioactivity surveys showed increased foci of activity in six of these patients. It was subsequently shown that two of these six had a large benign gastric ulcer, two had ascites, and two

showed no evident pathological area other than the primary neoplasm. In the remaining 53 of the patients with known neoplasms, hepatic metastases were demonstrated at laparotomy, though in only 11 was hepatic involvement suspected on clinical grounds. In 49 of these patients, the hepatic survey revealed foci of increased radioactivity. Autopsy studies in 24 of these patients showed that the location and extent of these foci corresponded to the degree of liver involvement. Liver function tests were performed in 28 patients who were subsequently shown to have metastases to the liver. In 16 of these patients the results of all tests used were within normal limits, while in 26 of the 28 patients, the radioactive survey revealed correctly the presence of metastases.

Control surveys were done on 28 patients with benign liver disorders. Abnormal results were obtained in six of eight patients with cirrhosis and ascites and in two of six patients with acute hepatitis. Normal readings were obtained in these two patients after the acute phase of the hepatitis had subsided. Normal readings were also obtained in 14 patients who had cirrhosis without ascites.

The authors feel that the usefulness of this method may not be limited only to liver surveys, since in 11 patients foci of increased activity were found elsewhere and were shown by subsequent operation or autopsy to overlie metastatic lesions. While the method was occasionally of value in detecting recurrent neoplasms, it did not appear to be of value in detecting primary neoplasms, since in only six patients was increased activity observed over the primary site, and all six of these patients were shown to have large neoplasms with local extension of the tumor.

Tissue from primary neoplasms often showed no more activity than that of adjacent normal tissue, whereas the activity in metastases averaged 31% more than that of normal adjacent tissue. Apparently, the extent of the hepatic involvement rather than the histological type determined the degree of increased radiation. The smallest metastases detected by radioactive survey were approximately 2 cm. in greatest diameter. The investigators suggest that the increased concentration of the radioalbumin in metastatic lesions may have some relation to a specific affinity for the compound by the tumor cells or to the increased cellularity and vascularity of the metastatic lesion.

Stirrett and his associates advocate the routine use of hepatic radioactivity surveys in both the preoperative evaluation of all patients with suspected carcinoma and the follow-up examinations of these patients after surgery. They feel this method offers a safe and accurate method of determining the presence of hepatic metastases provided these lesions are at least 2 cm. in diameter and provided the patient is free of ascites, inflammatory processes in the liver, and intra-abdominal inflammatory lesions.

1. Stirrett, L. A.; Yuhl, E. T., and Libby, R. L.: A New Technique for the Diagnosis of Carcinoma Metastatic to the Liver: Preliminary Report, *Surg., Gynec & Obst.* **96**: 210, 1953; The Hepatic Radioactivity Survey, *Radiology* **61**: 930, 1953. Yuhl, E. T., and Stirrett, L. A.: Clinical Evaluation of the Hepatic Radioactivity Survey, *Ann. Surg.* **138**: 857, 1953.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

During my recent extended tour of California I had the privilege of taking part in a series of meetings sponsored jointly by local chambers of commerce and medical societies. This was a rewarding experience and one that I wish many other doctors could have shared. I was afforded the opportunity of discussing medico-economic problems with a great number of laymen and of telling the positive story of the American Medical Association's many achievements in public service. The jointly sponsored meetings were held in San Diego, Los Angeles, Pasadena, San Francisco, and Sacramento. Most of these gatherings drew capacity audiences, and about two-thirds of those attending were lay persons.

It was gratifying to find such keen interest in the activities of the medical profession. At the same time I had the impression that the physicians who attended the meetings also enjoyed the opportunity of exchanging opinions and ideas with the businessmen, industrialists, and other professional men who were present. From the standpoint of communications, I believe this is one of the most effective devices for telling the story of American medicine. A word of mouth message is frequently more impressive than one on a printed page. It is a procedure that I wish county medical societies throughout the country could adopt on a periodic basis.

The managers of the chambers of commerce whom I met expressed great satisfaction with the success of the jointly sponsored meetings. They thought the idea was mutually advantageous. It is my personal belief that such joint sponsorship need not be restricted to chambers of commerce; probably equal cooperation could be obtained from Rotarians, Kiwanis clubs, Lions clubs, and other service organizations, as well as from other associations.

One of the chief afflictions among professional and businessmen in our complex society to day is lack of interest in what the other fellow is doing. As our technological progress grows, it becomes increasingly difficult to keep a broad perspective of what is going on, and the tendency to specialization grows stronger.

The day of the plant superintendent who was able to boast that he could perform every one of the jobs in his shop with equal skill is rapidly vanishing. The business executive who could describe every intricate detail of his enterprise is becoming rare. And the family doctor once thought suitably equipped to handle almost any kind of ailment finds increasing need for consultation with specialists.

With each passing year there is an ever-higher rate of skilled personnel crawling into hard shells of specialization that prevent over-all contact with their industrial and professional neighbors. Worse yet, these persons become divorced from all community activity. Yet the need is great for a better understanding among business, industry, and the professions. In turn these segments of our economy owe much to the communities in which they prosper, and persons owe to each other the obligation to be good neighbors.

It is my sincere belief that local medical societies should encourage each individual member to participate in some civic undertaking. We physicians should be rendering health leadership in all service

clubs, chambers of commerce, fraternal and veterans organizations, PTA groups, church associations, and unions. We cannot expect these organizations to be interested in our problems if we are not interested in theirs. Doctors should rub elbows on a social and organizational basis with persons outside the profession. There is much good to be gained in taking the time to learn the troubles of the other fellow. A diet limited to one-track ideas can lead only to social anemia.

If we are to continue serving the public effectively, we must seek out the facts on what the public wants. Getting together with representatives of groups

outside the medical profession is one way of gaining these facts. And while we are doing this job of research we will be better able to impart to the laity the facts of our own service in the public interest.

The more than 140,000 members of the A.M.A. have no reason to be apologists for their profession. They need only to take advantage of the opportunity to tell the story of our positive program in 140,000 different ways. If any individual physician feels he does not have enough facts at his command, I highly recommend the reading of President-Elect Walter B. Martin's superb statement presented before the House Committee on Interstate and Foreign Commerce. This statement was published in *THE JOURNAL*, February 13, on page 589 of the Organization Section.

Here for the investment of a few minutes' reading time you will find the best, and one of the most complete, accounts of the American Medical Association's positive program for public service. It is the finest ammunition obtainable for the job that all of us must do collectively and as individuals.

EDWARD J. MCCORMICK, M.D., Toledo, Ohio



ORGANIZATION SECTION

MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE

The Medical Association of the Isthmian Canal Zone, now in its 48th year, was established shortly after Gen. William C. Gorgas, M.C., U. S. Army, served as chief sanitary officer for the Panama Canal during the construction period, 1904-1914. According to the *Panama Canal Review*, when tropical medicine was in its infancy the association served as a clearing house where members could discuss mutual problems and give one another sometimes a much-needed boost along paths that were just being explored. Two of the charter members remain on the Isthmus: Dr. Harry Eno, who, after 10 years at Ancon Hospital, retired to private practice in Colon, Republic of Panama, where for several years he was head of the Samaritan Hospital, and Dr. Dennis F. Reeder, president of the association in 1914, who resigned as chief of Ancon's eye, ear, nose, and throat clinic in 1916 to help establish the Hospital de Panama in Panama City, where he is still in active practice. Another of the first members, the late Dr. Samuel T. Darling, in 1906 shortly after the formation of



the association, gave to the world the first description of histoplasmosis and in 1909 described trypanosomiasis of domestic stock, first recognized on the Isthmus by him. Dr. Darling, who for six years was the first chief of the Board of Health Laboratory in Ancon, was president of the American Society of Tropical Medicine in 1924 and president of the Isthmian medical association in 1908. General Gorgas, whose coming to Panama gave strong impetus to medical science there, also served in these dual capacities, and in 1910 during his presidency of the American Medical Association, the Isthmian medical association was admitted as a constituent member. The first president of the Isthmian association was the late Dr. Alfred B. Herrick, who was head of the board of health laboratory from 1904 to 1906. Resigning as chief of the surgical clinic at Ancon Hospital in 1915, he helped establish the Hospital de Panama and the Herrick Clinic.

Other illustrious alumni include Dr. Herbert C. Clark, director of the Gorgas Memorial Laboratory in Panama City since its establishment in 1929; Dr. James Simmons, now dean of the Harvard School of Public Health in Boston; Dr. Lewis B. Bates, bacteriologist and serologist on the first permanent staff of the board of health laboratory and chief of the laboratory from 1919 to 1948, now living in Weymouth, Mass.; Dr. George R. Callender (Brig. Gen., retired, Washington, D. C.) first president of the Army Medical Research Board on the Isthmus; the late Dr. William E. Deeks, chief, medical clinic at Ancon Hospital, 1907-1910, and a medical director for the United Fruit Company; Dr. Edward I. Salisbury, New York, present head of the medical department of that company; Dr. Carl M. Johnson, health officer in Panama

City, former assistant director and protozoologist at Gorgas Memorial Laboratory; and Dr. William M. James, who collaborated with Dr. Deeks in research on malaria, blackwater fever, amebic dysentery, and associated chronic infections, and during whose administration the word "Isthmian" was added to the name of the association to distinguish it from the Suez and other canal zones. Brig. Gen. Elbert De Coursey, head of the Armed Forces Institute of Pathology, Washington, D. C., served the association as secretary in 1933 and as president in 1934, when he was pathologist at the Board of Health Laboratory.

Formed originally of physicians employed by the Isthmian Canal Commission, the association for many years enjoyed a semiofficial status, canal funds being used for publication of the proceedings of the association. In 1916 members of the Army Medical Corps stationed on the Isthmus were invited to join the association, and among them was Dr. George F. Lull, now Secretary and General Manager of the American Medical Association. Dr. Lull's son, now chief of the x-ray service at Gorgas Hospital, is one of the three "second generation" members of the association, the others being Dr. Feruccio Bertoli Jr., pathologist at Gorgas Hospital, and Dr. Lawrence M. Drennan Jr., assistant superintendent of the hospital.

The association holds most of its meetings at the Gorgas Memorial Laboratory. The officers are Dr. Irving J. Strumpf, Balboa, C. Z., president, and Dr. I. Robert Berger, Ancon, C. Z., secretary. The Isthmian association is this month participating in commemoration of the 50th year of Panamanian independence and the 50th year of the advent of American medicine in the Canal Zone by sponsoring the Inter-American Medical Convention in Panama City, March 24-26 (*THE JOURNAL*, Feb. 20, page 689). The association numbers among its members three former presidents of the Republic of Panama: Drs. Arnulfo Arias, Augusto S. Boyd, and Daniel Chaus Jr., and a former ambassador to the United States, Joaquin J. Vallarino, all of Panama City.

FEDERAL MEDICAL LEGISLATION

Medical Facilities, Surveys, and Construction

Senator Smith (R., N. J.) in S. 2758 proposes "to amend the hospital survey and construction provisions of the Public Health Service Act to provide assistance to the States for surveying the need for diagnostic or treatment centers, for hospitals for the chronically ill and impaired, for rehabilitation facilities, and for nursing homes, and to provide assistance in the construction of such facilities through grants to public and nonprofit agencies." This is an administration bill identical with H. R. 7341 (Wolverton) previously reported. The bill was referred to the Committee on Labor and Public Welfare.

Vocational Rehabilitation

Senator Smith (R., N. J.) in S. 2759 would "amend the Vocational Rehabilitation Act so as to promote and assist in the extension and improvement of vocational rehabilitation services, provide for a more effective use of available federal funds, and otherwise improve the provisions of that act." This is an administration bill based on the President's health message to Congress. The proposed bill would authorize appropriations to assist in the rehabilitation of handicapped persons in three ways: (1) grants to states to meet the cost of rehabilitation services, (2) six-year grants to states to extend and improve rehabilitation services, and (3) grants to states and to public and other nonprofit organizations and agencies to meet the cost of unique projects directed toward

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

the solution of regional or national rehabilitation problems. During the fiscal years 1955 and 1956 special project grants would be available for helping the states to plan and initiate a substantial expansion of their vocational rehabilitation programs.

Each state would have a minimum general grant of \$50,000, with a federal share varying from $\frac{1}{2}\%$ to $\frac{3}{4}\%$. The extension of improvement grants would carry a minimum allotment of \$5,000 for states, with the federal share varying from up to 75% of the costs for the first two years, 50% for the next two years, and 25% for the last two years. The states would be required to designate a single administrative agency and provide for personnel and administration standards to be approved by the Secretary of Health, Education, and Welfare. The state agency must agree to cooperate with the Bureau of Old Age and Survivors Insurance, the state agency administering the state public assistance program, and other bureaus providing vocational rehabilitation services. It is not intended in this bill to provide grants for major new construction. This bill was referred to the Committee on Labor and Public Welfare.

Grants to States

Senator Smith (R., N. J.) in S. 2778 has introduced the administration bill to make more uniform, yet flexible, distribution of funds in grants-in-aid for public health services. The bill would replace the present separate and extremely variable authorizations for grants to control individual disease with the authorizations for the following three types of grants: (1) grants to assist the states generally in meeting the costs of their public health service, (2) six-year grants to assist states in "initiating projects for the extension and improvement of their public health services," and (3) "grants to states and to public and other nonprofit organizations and agencies to assist in combating unusually severe public health problems in specific geographical areas, in the carrying out of special projects which hold unique promise of making a substantial contribution to the solution of public health problems common to a number of states, and in meeting problems of special national significance or concern." In the type 1 grant the financial formula would be based on the states relative population and fiscal resources as measured by the states per capita income, the same formula as is used in the Hill-Burton hospital act. Each state would have a minimum allotment of \$50,000 with the federal share from $\frac{1}{3}\%$ to $\frac{3}{4}\%$. In the type 2 grants, there would be a minimum state allotment of \$25,000 with the federal share up to 75% in the first two years, 50% in the next two years, and 25% for the last two years. The type 3 grant would be made by the Surgeon General from funds available for any one fiscal year. In allowing for the change-over for the new allotment formula, there would be a limit of 10% for any decrease of allotments which a state would receive in any one year. This bill was referred to the Committee on Labor and Public Welfare. Congressman Wolverton has introduced an identical bill, H. R. 7397, which was referred to the House Interstate and Foreign Commerce Committee.

Children's Service Act

Congressman Reed (R., N. Y.) proposes in H. R. 7448 to amend title 5 of the social security act to carry out the administration's recommendations of making federal grants more uniform. The bill would replace the bill separate authorizations for grants for maternal and child health, crippled children, and welfare agencies, with three types of grants: 1. General assistance to states to finance their child health and welfare services. The formula for determining each state allotment would consider the relative child population of the states and the per capita income. Each state would have the minimum of \$200,000 with the state share from $\frac{1}{3}\%$ to $\frac{3}{4}\%$. 2. Six-year grants to aid states in extending and improving child health and welfare service. There would be a minimum of \$5,000 for states with the federal share up to 75% for the first two years, 50% for the next two years, and 25% for the last two years. Of each state's allotment in type 1 and 2 grants, 19% would be for child welfare, 29% for crippled children, and 32% for maternal and child wel-

fare service. The remaining 20% would be allotted among these services by the state governor. 3. Grants to states and public and nonprofit institutions of higher education to meet the costs of projects to solve child health and welfare problems of national significance. To be eligible for federal allotment, a state would have to submit plans to the Secretary of Health, Education, and Welfare and to the Child Assistance and Welfare programs. The bill authorized 41 million dollars to be appropriated annually, the same as of present, but the administration estimates that only 30 million dollars will be needed, the same as is currently provided.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 182, proposes certain amendments to the law relating to the licensing and vaccination of dogs for the purpose of controlling rabies. H. 206, to amend the law relating to the sale of certain drugs without a prescription, proposes to add to the list of drugs "antibiotics, including but not limited to penicillin, streptomycin, aureomycin, chloramphenicol and bacitracin." H. 219, proposes that no medical preparation or appliance having special utility for the prevention of venereal disease shall be sold except by an establishment holding a state license issued by the state board of pharmacy, nor shall any such preparation or appliance be advertised except in a professional publication the circulation of which is limited primarily to the drug trade or physicians. The prohibitions of the act would not apply to a duly licensed physician in the regular course of his practice.

Kentucky

Bills Introduced.—H. 178, proposes an appropriation for the purpose of making loans and scholarships for the study of medicine by students who are bona fide residents of Kentucky and who desire to become physicians and are acceptable for enrollment in a medical school approved by the state board of health. S. 104, proposes the creation of a Kentucky board of ophthalmic dispensers to examine, license, and regulate ophthalmic dispensers.

Maryland

Bills Introduced.—H. 27, proposes to amend the definition of the practice of chiropody to mean the diagnosis, surgical, medical, or mechanical treatment of all ailments of the human foot. The term "surgical" is defined for the purposes of this subtitle as limited to the soft tissues of the foot, superficial to the deep fascia and to the toes; with the amputation of a toe or toes and the use of an anesthetic, other than local, prohibited.

Massachusetts

Bills Introduced.—H. 1939, proposes that a person shall not perform on a living mammalian animal any pain-producing experiment except subject to the restrictions of the proposal and it makes it an offense for any person to perform or take part in the performing of any experiment in contravention to the proposal's provision. Licenses to persons authorized to engage in such experiments would be issued by the commissioner of public safety. H. 2351, proposes the creation of a special commission to make an investigation and study relative to the training of medical laboratory technologists. S. 508, proposes that the department of mental health shall not employ any European psychiatric doctor who is of foreign birth and education, relative to certain patients in the department of mental health.

Mississippi

Bills Introduced.—H. 208, proposes to require the examination of applicants for drivers' licenses so as to test the applicant's eyesight and also authorizes such further physical and mental examination as the commissioner of public safety finds necessary to determine the applicant's fitness to operate a motor vehicle safely upon the highways. H. 398, proposes to empower the board of trustees of state institutions of higher learning to prescribe standards for schools of nursing and to administer scholarship funds for nursing students. H. 426, proposes the establishment of a program for study in nursing, together with the establishment of 1,000 scholarships in nursing education. H. 427, proposes to amend the nursing practice act by including provisions relating to the licensing of practical nurses. S. 1293, proposes the creation of a state examining committee for physical therapists and defines physical therapy as the treatment of disease or injury of any person by the use of physical, chemical, and other properties of heat, light, water, electricity, massage, and therapeutic exercise, including posture and rehabilitation procedures. The use of roentgen rays and radium for diagnostic purposes, including cauterization, are not authorized. S. 1356, proposes to amend the Mississippi law so as to exempt from jury service nurses, nurses aids, and hospital attendants actually engaged in their vocation. S. 1320, proposes the enactment of a system for vaccinating dogs for rabies so as to control the spread of rabies throughout the state. S. 1341, proposes the creation of a scholarship program for nursing education. S. 1342, proposes to authorize the Board of Trustees of State Institutions of Higher Learning to prescribe standards for Schools of Nursing and to administer scholarship funds for nursing students. S. 1405, proposes the creation of a board of chiropractic examiners and defines chiropractic as the science, art, and philosophy of things natural; a system of locating and adjusting the subluxations of the articulations of the human spine and its adjacent tissues for the correction of the cause of disease.

MEDICAL NEWS

CALIFORNIA

Surgical Forum in Los Angeles.—The Society of Graduate Surgeons of the Los Angeles County Hospital will hold its annual surgical forum March 1-5 at the Ambassador Hotel, Los Angeles. Guest lecturers will be Drs. Robert S. Dinsmore, Cleveland, I. Mims Gage, New Orleans, Francis D. Moore, Boston, Hans Selye, Montreal, Canada, and Robert M. Zolinger, Columbus, Ohio. The forum will consist of daily presentations by each of the guest lecturers. At the end of each day the entire faculty will be available for discussions. The registration fee, \$85, includes the cost of the four luncheons and the banquet at the conclusion of the week's activities. Application, accompanied by a check for the registration fee, should be mailed to Dr. Eugene J. Joergenson, Chairman, Registration Committee, 540 N. Central Ave., Glendale 3. Attendance is limited to 250 persons.

CONNECTICUT

Lecture on Diabetes.—Dr. Theodore Lidz, professor of psychiatry, Yale University School of Medicine, New Haven, will present "Psychotherapeutic Aspects of Diabetes Mellitus" at the Hartford Hospital, Feb. 27, 11 a. m.

Teaching Program in Rehabilitation.—The Yale University School of Medicine, New Haven, has received from the National Foundation for Infantile Paralysis a five year "March of Dimes" grant of \$150,000 for a teaching program in rehabilitation for poliomyelitis patients as well as other disabled persons. Dr. Thomas F. Hines, assistant professor of medicine and director of physical medicine and rehabilitation, will administer the program, intended primarily to stimulate the teaching of basic concepts and techniques of total rehabilitation to medical students. The funds will be used for increasing the staff of the present rehabilitation service operated at the Grace-New Haven Community Hospital, as well as the scope of its program, and for continued clinical research in the field of rehabilitation.

DISTRICT OF COLUMBIA

Custis Hall Memorial Lecture.—The Washington Orthopedic Club will present the Custis Lee Hall memorial lecture at 8:30 p. m. March 1 in the auditorium of the Medical Society of the District of Columbia, Washington, D. C. Dr. Leo Mayer, New York, will discuss "The Evolution of Tendon Surgery."

Posthumous Award to Colonel Halloran.—A bronze plaque in honor of the late Col. Roy D. Halloran, M.C., was recently unveiled at the Walter Reed Army Medical Center, Washington, D. C., and the Army's Certificate of Achievement was awarded to him posthumously. The plaque, donated by the American Psychiatric Association, was presented by Dr. Winfred Overholser, superintendent of Saint Elizabeths Hospital, Washington, D. C., to Major Gen. Leonard D. Heaton, M.C., Commanding General of the Center, and the certificate by Major Gen. George E. Armstrong, Army Surgeon General, to Colonel Halloran's son and daughter. The certificate credits Colonel Halloran for establishing the groundwork for the Army's present-day psychiatric program in World War II.

FLORIDA

Lecture on Cardiac Surgery.—Dr. George H. Humphreys, New York, will give an illustrated talk on cardiac surgery at 8:30 p. m. March 1 at Memorial Hall, Jackson Memorial Hospital, Miami, under the sponsorship of the Greater Miami chapter, American College of Surgeons.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

GEORGIA

Eye Bank in Atlanta.—The Ponce de Leon Eye, Ear, Nose and Throat Infirmary, Atlanta, affiliated with the national Eye Bank for Sight Restoration, Inc., is offering its services for those who wish to donate their eyes to the eye bank at time of death. Physicians may obtain the necessary forms from the infirmary, which will make all arrangements after notification by the physician.

Health Forums.—The Fulton County Medical Society is sponsoring a series of public health forums at the Tower Theater, Atlanta. The following programs will be presented in March by Atlanta physicians: March 2 "You and Your High Blood Pressure" (moderator, Dr. Bernard L. Shackleford; speaker, Dr. Arthur J. Merrill); March 9 "You and Your Nervous Tension" (moderator, Dr. William G. Hamm; speaker, Dr. Paul L. Schroeder); March 16 "You and Your Diabetes" (moderator, Dr. Eugene B. Ferris; speaker, Dr. Christopher J. D. McLoughlin); March 23 "You and Your Stomach Ulcers" (moderator, Dr. Eustace A. Allen; speaker, Dr. E. Napier Burson Jr.).

ILLINOIS

Psychiatric Lectures.—In its series on treatment in psychiatry, which is open without charge to all physicians, the North Shore Health Resort, 225 Sheridan Road, Winnetka, offers a lecture "The Role of the Family in Emotional Disorders" by Jules Henry, Ph.D., associate professor of anthropology, Washington University, St. Louis, on March 3, 8 p. m.

Rehabilitation Services.—The Illinois division of vocational rehabilitation, a state-federal service, announces that in 1953 it rehabilitated into remunerative services 3,812 handicapped persons. The division provides for the handicapped an opportunity for job preparation equal to that which the public education program provides for the nonhandicapped. The following services are available to vocationally disabled persons regardless of ability to pay: (1) complete diagnostic service—medical examinations, specialist and clinical study, psychiatric study, and psychological testing; (2) guidance based on diagnosis and case study; (3) training tuition; and (4) placement and follow-up. For those not financially able to obtain them, the following services are available: (1) medical, surgical, hospital, and psychiatric service, and occupational and physical therapy, if diagnosis indicates cure or substantial improvement in a reasonable length of time; (2) artificial appliances; (3) training supplies; (4) maintenance and travel during training (not public assistance; covers only increased expense resulting from the rehabilitation plan); and (5) occupational tools and equipment for use in a trade or business.

The services of the division are available only in cases of substantial vocational handicap in which there is reasonable expectancy that the service will result in employment. Acute temporary disabilities, such as appendicitis or pneumonia, cannot be treated, nor can chronic disabilities, such as tuberculosis. Vocational services are rendered only after the chronic ailment has been diagnosed as slowly progressive, arrested, or likely to be arrested in a reasonable time and with no more than 90 days of hospitalization. The division points out that the physician's office is the best source of referral to the division and that through his cooperation many more needy handicapped people can be rehabilitated.

Chicago

Hektoen Commemorative Services.—The second Ludwig Hektoen commemorative services, sponsored by the Chicago Pathological Society, will be held March 14 at 11 a. m. in the Hyde Park Baptist Church, 5600 Woodlawn Ave., where portions of Mozart's Requiem will be sung by the choir, assisted by members of the Chicago Symphony Orchestra. All are invited to attend.

Annual Medical Society Clinical Conference.—The Chicago Medical Society will present the annual clinical conference March 2-5 at the Palmer House, Chicago. Daily round-table luncheons will be preceded and followed on Tuesday, Wednesday, and Thursday by color television from Cook County Hospital. Out-of-state speakers include:

Tom D. Spies, Birmingham, Ala., Vitamins as Therapeutic Agents.
 Ferdinand C. Helwig, Kansas City, Mo., Diagnosis and Management of Breast Tumors.
 James H. Maxwell, Ann Arbor, Mich., Diseases of the Parotid Glands.
 Stewart G. Wolf, Oklahoma City, Role of Stress in Peptic Ulcer.
 Marion B. Sulzberger, New York, Dermatological Disorders Commonly Encountered in General Practice.
 Robert A. Ross, Chapel Hill, N. C., Importance of Conservatism in Gynecology.
 Henry K. Beecher, Boston, Early Care of the Severely Injured.
 Paul W. Schafer, Kansas City, Kan., Management of Asymptomatic Solitary Circumscribed Pulmonary Opacities.
 Harry L. Alexander, St. Louis, Allergic Reactions to Drugs.
 Robert Elman, St. Louis, Management of Intestinal Obstruction.
 Bernard Becker, St. Louis, Retinal Complications of Diabetes Mellitus.
 Charles C. Higgins, Cleveland, Significance of Hematuria.
 Francis D. Murphy, Milwaukee, Types of Hypertension.
 Louis Leiter, New York, Medical Treatment of Hypertension.
 Reginald H. Smithwick, Boston, Surgical Treatment of Hypertension.
 Herman H. W. Kumm, New York, Present Status of Prophylaxis in Poliomyelitis.
 Alan F. Guttmacher, New York, Treatment of Hemorrhage in Obstetrics and Gynecology.
 Stewart H. Clifford, Boston, Infection in the Newborn.
 J. Murray Kinsman, Louisville, Ky., Medical Infections of the Kidney.

The Tuesday sessions will end with a clinicopathological conference, 4:30-5:30 p. m.; the Thursday sessions with a panel discussion on blood diseases, 4-5 p. m.; and the Friday meeting with a panel on obstetrics and gynecology, 3:30-4:30 p. m. The registration fee is \$5.

MAINE

Medical Legal Conference.—The semiannual meeting of the Maine Medico-Legal Society, Feb. 4-5 in Portland, was dedicated to Dr. George L. Pratt, Farmington, the "father of the society," who has served as secretary since its formation in 1935. The conference on medical legal techniques in the investigation and prosecution in cases of violent and suspicious deaths included round tables on law enforcement and the crime problem, concepts of limited responsibility, medical legal advancement since the turn of the century, use of circumstantial evidence, the trial of a crime detection case, and problems of the medical examiner. The evening meeting was addressed by the Hon. Eugene Cook, Atlanta, president of the Attorneys General Association of the United States, and attorney general for Georgia, whose topic was "A New Look at State and Federal Crime Problems."

MICHIGAN

Hickey Memorial Lecture.—Wayne University College of Medicine, Wayne County Medical Society, and the Detroit Roentgen Ray and Radium Society announce the Hickey memorial clinic and lecture and a testimonial dinner for Dr. Lawrence Reynolds, professor of roentgenology at the college of medicine, March 4. In the morning Drs. H. Dabney Kerr, Iowa City, and Harold W. Jacox, New York, will speak on carcinoma of the cervix, and in the afternoon Drs. Eugene P. Pendergrass, Philadelphia, and Wendell G. Scott, St. Louis, will discuss "Vascular Radiography." The Hickey memorial lecture by Dr. Reynolds at 4 p. m. will be followed by a testimonial dinner at the Veterans Memorial Building, to which Dr. Reynolds' friends and associates are invited. Dr. Reynolds will be honored by the establishment of a Lawrence Reynolds Radiological Niche in the new Wayne University Library.

MONTANA

State Association Interim Session at Helena.—The Montana Medical Association will hold its interim session March 5-6 in the Placer Hotel, Helena, under the presidency of Dr. Sidney C. Pratt, Miles City. Dr. Raymond F. Peterson, Butte, will serve as moderator for a clinicopathological conference Friday, 1:45 p. m., with the following participants: Drs. John

H. Bridenbaugh and Wayne Gordon, Billings; Dr. Alfred M. Lueck, Livingston; and Dr. John C. Wolgamot, Great Falls. At 4:10 p. m., through the courtesy of the Montana chapter of the National Foundation for Infantile Paralysis, Inc., Dr. Carl J. Potthoff, Rochester, Minn., will discuss "Recent Developments Toward a Vaccine Against Poliomyelitis." Dr. Pratt will serve as toastmaster for the banquet, 7:30 p. m., at which the Rev. Dr. Paul B. McCleave, pastor of the First Presbyterian Church, Bozeman, and former president of the College of Emporia, Kansas, will present "John Q. Looks at the Doctor."

NEW YORK

Society News.—At the meeting of the Rochester Academy of Medicine (1441 East Avenue) March 2, 8:30 p. m., Dr. James B. Amberson, New York, will speak on tuberculosis. The April 6 meeting will be addressed by Dr. Willard M. Allen, St. Louis, who will discuss "The Adrenogenital Syndrome."

Course on Arthritis.—The University of Buffalo School of Medicine offers a postgraduate course on arthritis March 3 at the Buffalo General Hospital. The program will open with "Action of Antirheumatic Drugs" by Dr. Bernard M. Norcross, after which case presentations will be made on gout, rheumatoid arthritis, rheumatoid spondylitis, osteoarthritis, and collagen disease. An arthritis clinic, 2-4 p. m., will be followed by demonstration of the use of physical therapy in arthritis. The fee for the course is \$15. Request for registration should be sent to Dr. Milton Terris, Assistant Dean for Postgraduate Education, University of Buffalo School of Medicine, 3435 Main St., Buffalo 14.

Personal.—Dr. Walter T. Hausheer, Staten Island, has joined the medical department of the Standard Oil Development Company. Dr. Hausheer served for more than four years with the Navy during World War II.—Dr. Duncan W. Clark, professor of environmental medicine and community health at the State University of New York College of Medicine at New York City, Brooklyn, was elected chairman of the Conference of Professors of Preventive Medicine at a meeting, Nov. 9, 1953, held during the annual convention of the American Public Health Association at the Hotel Statler.—Dr. Wesley T. Pommerenke, associate professor of obstetrics and gynecology, University of Rochester School of Medicine and Dentistry, left Rochester Dec. 18, 1953, for an eight-month lecture-teaching tour in Syria, India, and Japan. He will lecture at the American University of Beirut, Lebanon, then spend three months as visiting professor of obstetrics and gynecology at the University of Madras, India, under the sponsorship of the Unitarian Service Committee, a nonsectarian voluntary organization, and another three months as visiting professor at Keio Gijuku University, Tokyo, Japan. At the request of the Indian minister of health, Dr. Pommerenke will stop at New Delhi for conferences on his teaching program. A year ago Dr. Pommerenke was an American delegate to the World Conference on Population Problems in Bombay and last April addressed the Mexican Society for the Study of Sterility.—Dr. Emanuel Schwartz, Brooklyn, has been appointed to the three-member medical practice committee of the New York State Workmen's Compensation Board, succeeding Dr. Joseph Raphael, also of Brooklyn, who retired Dec. 31, after serving as a member of the committee since 1944. The other members of the committee are Dr. Francis M. Conway, New York, chairman, and Dr. Chester L. Davidson, Jamaica.

New York City

Hospital News.—Dr. Edward E. Fischel, who has been engaged in teaching and research at the Presbyterian medical center, has been appointed full-time director of medicine at the Bronx Hospital and will assume his duties on May 1.—On March 5 Dr. Albert Tannenbaum, director, department of cancer research, Medical Research Institute, Michael Reese Hospital, Chicago, will present "Some Aspects of Nutrition in Cancer" at 3 p. m. in the social hall of Montefiore Hospital for Chronic Diseases.

Symposium on Cancer.—The New York Cancer Society will present the following symposium on recent experiences in the higher energy irradiations in cancer therapy March 2, 8:30 p. m., at the New York Academy of Medicine, Fifth Ave. at 103rd St.:

Supervoltage Radiation in Treatment of Cancer, Hugh F. Hare, Los Angeles.

Preliminary Observations with 22 MEV Radiation in Treatment of Cancer, James J. Nickson, New York.

Experiences with the Cobalt 60 Beam Teletherapy Unit in Treatment of Cancer, Jacob R. Freid, New York.

Physicians and medical students are invited.

Program on Radioisotopes.—"The Practical Clinical Application of Radioisotopes in Medical Diagnosis and Treatment" will be presented in the Main Lecture Hall, New York University College of Medicine, 477 First Ave. (near 28th St.), March 1, 8:30 p. m. Dr. Maxwell H. Poppel, professor and chairman, department of radiology, New York University College of Medicine, will preside over the following program:

Use of Radioisotopes in the Study of Blood Volume, Solomon A. Berson.

Radioactive Iodine in Diagnosis of Thyroid Disorders, Solomon Silver. Radioactive Phosphorus in Leukemia, Polycythemia Vera, and Superficial Skin Lesions, and Colloidal Radioactive Phosphorus for Interstitial Use in Cancer, Bernard Roswit.

Use of Radioactive Gold in Malignant Peritoneal and Pleural Effusions, Sidney Rubinfeld.

OHIO

Society News.—The Academy of Medicine of Cincinnati will have as guest speaker March 2 Dr. Charles K. Friedberg, assistant clinical professor of medicine, Columbia University College of Physicians and Surgeons, New York, who will discuss "Drugs in the Treatment of Heart Disease." March 16 Dr. Carl V. Moore, professor of medicine, who will become dean of Washington University School of Medicine, St. Louis, March 15, will present the Roger Morris lecture, "New Concepts About Thrombocytopenic Purpura, Sensitivity to Platelets, and Platelet Types."

Dr. Vilter to Make Egyptian Survey.—Dr. Richard W. Vilter, associate professor of medicine, University of Cincinnati College of Medicine, and a member of the committee on dietary allowances of the National Research Council, has been selected by the World Health Organization to survey for the United Nations the causes of anemia and nutritional deficiency diseases in Egypt. During his two month study he is to determine what substance may be lacking in the native diet and recommend to the Egyptian government what can be done to replace the missing substance. Egyptians depend largely on a corn-meal diet.

PENNSYLVANIA

Society News.—The Philadelphia County Medical Society announces that, effective March 1, Mr. Laurence S. Whyte will become its business manager. Miss Dorothy Ann Harrison, former executive assistant, has been appointed editor of *Philadelphia Medicine*. The offices of the publication are in the society building, 301 S. 21st St., Philadelphia.

Secretaries-Editors Conference.—The 42nd annual conference of secretaries and editors of the component county medical societies of the Medical Society of the State of Pennsylvania will be held in Harrisburg, March 4-5. Discussions on the activities of the state medical society and the duties of county society officers will be held Thursday afternoon. Wilton M. Krogman, Ph.D., professor of anthropology at the Graduate School of Medicine, University of Pennsylvania, speaker at the dinner, Thursday, 6 p. m., will have as his subject "Dry Bones!" On Friday morning the problem of caring for non-service-connected disabilities of veterans will be discussed, as will "The D. P. A. Experimental Payment Program," "Polio Vaccine in Pennsylvania," "The Rural Medical Service Survey," and "The Ethical Relationship of the Physician to Media of Public Information."

Philadelphia

Anders Lecture by Howard Rusk.—On March 3, 8:30 p. m., the College of Physicians of Philadelphia will present the James M. Anders lecture. Dr. Howard A. Rusk, professor and chairman, department of physical medicine and rehabilitation, New York University College of Medicine, will discuss "The Physician and the Changing World."

VIRGINIA

Personal.—Dr. James N. Dudley, commissioner of health at Roanoke since September 1946, has resigned and has accepted a position with the Lovelace Clinic at Albuquerque, N. Mex. —Dr. A. McGarvey Wallace, Gate City, who recently was awarded his certificate for 50 years of practice of medicine by the Medical Society of Virginia, flew his own plane to Roanoke for the presentation.

Graduate Lecture Program.—The University of Virginia Department of Medicine, Charlottesville, invites all physicians to attend, without fee, its spring series of graduate lectures. The program for March includes:

March 1, William B. Castle, Boston, Some Immunologic Aspects of Disorders of the Blood.

March 8, Roy R. Grinker, Chicago, Some Newer Aspects of Psychosomatic Medicine.

March 15, Harry Eagle, Bethesda, Md., Studies of the Mode of Action of Penicillin.

March 22, George W. Wright, Cleveland, Measurement of Respiratory and Cardiac Circulatory Reserves.

March 29, Oliver H. Lowry, St. Louis (title to be announced).

GENERAL

Thirty-Eighth Medical Golfing Association Tournament.—The golfers of the American Medical Association will meet at the Olympia Country Club in San Francisco on June 21, to compete in the 38th tournament of the American Medical Golfing Association. In anticipation of a large registration, the California committee has completed many arrangements to make this an outstanding event. Dr. Edward Campion, San Rafael, California, is President of the American Medical Golfing Association. Information may be obtained also from W. H. Bartleson, Executive Secretary, Jackson County Medical Society, 3036 Gillham Road, Kansas City 8, Mo.

American College of Gastroenterology.—At a meeting of its executive committee Jan. 10 in New York, the National Gastroenterological Association became the American College of Gastroenterology, with Dr. Sigurd W. Johnsen, Passaic, N. J., president of the association, and all other officers and committees assuming the same offices in the college. Applicants for fellowship in the college must have at least five years' training in gastroenterology at institutions or medical colleges that meet the standards set up by the board of trustees of the college. A regional meeting of the college will be held in Milwaukee March 28 and the annual meeting in Washington, D. C., Oct. 25-30.

Fellowships in Ophthalmology.—The National Council to Combat Blindness announces the launching of its fellowship program, the objectives of which are: (1) to meet the existing shortage of trained research manpower in the field of ophthalmology and its related sciences and (2) to encourage persons who have training in ophthalmology or the various branches—biological, chemical, and physical sciences—and clinical investigative medicine to undertake specialized research study. Under the conditions of these fellowships the applicants are required to make their own arrangements for suitable research facilities with recognized institutions. Numerous grants-in-aid are also awarded. Applications for 1954-1955 fellowship and grant-in-aid awards of the National Council to Combat Blindness will be considered at the fifth annual meeting in the spring. Completed applications should be received in the office of the council no later than April 15. Application forms may be obtained from the Secretary, National Council to Combat Blindness, 30 W. 59th St., New York 19.

Symposium on Gerontology.—Johns Hopkins University School of Hygiene and Public Health, Baltimore, and the National Vitamin Foundation will present a symposium on problems of gerontology, March 2, at the Biltmore Hotel, Madison Ave. at 43rd St., New York. The following presentations will be made:

- Nathan W. Shock, Ph.D., Baltimore, Physiological and Biochemical Studies of Aging.
 Albert I. Lansing, Ph.D., St. Louis, Role of Comparative Physiology in the Study of Aging.
 Harry J. Deuel Jr., Ph.D., Los Angeles, Fat Metabolism.
 Charles S. Davidson, Boston, Protein Metabolism.
 Bacon F. Chow, Ph.D., Baltimore, Absorption of Vitamins and Enzymic Activities in Aging.
 John Esben Kirk, St. Louis, Blood and Urine Vitamin Levels in the Aged.
 Frank H. Bethell, Ann Arbor, Mich., Hemopoietic Factors.
 C. N. Long, New Haven, Conn., The Hormones and Metabolism.
 Dwight J. Ingle, Ph.D., Chicago, Endocrine Stress and Aging.
 Henry A. Rafsky, New York, Nutritional Problems of the Aged.

There is no registration charge. Information may be obtained from the National Vitamin Foundation, 15 E. 58th St., New York 22.

Sectional Surgeons Meeting in Omaha.—The American College of Surgeons will hold a sectional meeting at the Hotel Fontenelle in Omaha, March 1-4. The general surgery sessions will include panel discussions on uterine malignancy, jaundice, intestinal obstruction, and pediatric surgery. Symposia will be featured on trauma, preoperative and postoperative care; vascular surgery, and congenital defects in children. The meetings in obstetrics and gynecology will have a panel discussion on bleeding during the first trimester of pregnancy and a symposium on management of prolonged labor. A symposium on management of lesions of the esophagogastric junction will be presented at the session on thoracic surgery, and the urologic sessions will hear panel discussions on surgery of hydronephrosis, of the adrenal, ureters in radical pelvic surgery, and undescended testis. Dr. Evarts A. Graham, St. Louis, is scheduled to present "More Evidence About the Relationship of Cigarettes to Cancer of the Lung" Tuesday morning. Dr. Earl A. Connolly, Omaha, chairman of the committee on arrangements, will preside over the dinner meeting Tuesday, at which Dr. Paul R. Hawley, director of the American College of Surgeons, will discuss "The Responsibilities of Medical Citizenship." A cancer symposium will follow, with Dr. H. Mason Morfit, Denver, as moderator.

Delay in Poliomyelitis Validity Tests.—The president of the National Foundation of Infantile Paralysis, Mr. Basil O'Connor, has announced that, because of delays in the manufacture of the trial poliomyelitis vaccine, the nationwide validity tests are expected to get under way in late March or early April. It had been hoped that the injection of school children taking part in the tests could begin in February. Mr. O'Connor said: "While production problems have postponed the date for the start of the trials, we plan to inoculate a sufficient number of children before June to determine scientifically the value of this product." He explained that most of the virus is grown at the Connaught Medical Research Laboratories, University of Toronto. The virus is then shipped to pharmaceutical and biological concerns for conversion into vaccine, which requires several weeks. Each lot of the vaccine is subjected to safety tests by three independent laboratories. The vaccine to be tested, developed under a March of Dimes grant by Dr. Jonas E. Salk of the University of Pittsburgh, is currently being produced on a nonprofit basis. Dr. Salk is extending his studies to at least 5,000 persons in Allegheny County, Pa., before the start of the national foundation field trials. A small amount of the commercially produced vaccine was expected to be available for Dr. Salk's studies in February, but the large quantities needed for the field trials cannot be processed, tested, and packaged for shipment before the last week in March. The vaccine trials are being organized with the advice of the national foundation's scientific committees and that of special committees appointed by the Association of State and Territorial Health Officers, with Dr. Hart E. Van Riper, New York, national foundation medical director, in charge of the project. The test areas are being selected on recommendation of individual state health officers, based on scientific criteria.

LATIN AMERICA

Clinicopathological Conferences.—Shortly after the International Cancer Congress (July 23-29) in São Paulo, Brazil, a Brazilian Clinical-Pathologic Debates Week will be observed in Curitiba, Paraná, Brazil, Aug. 2-7. A seminar on morbid anatomy slides and a series of debates on clinicopathological subjects have been scheduled, and it is hoped that plans for a national society of pathology may be formulated during the sessions. Information may be obtained from Dr. Atys Quadros da Silva, Visc. Guarapuava 3200, Curitiba, Paraná, Brazil.

FOREIGN

Congress of Psychiatry in Italy.—The 25th Congress of the Italian Association of Psychiatry will convene in the Neuropsychiatric Hospital, Varese, May 6-9. Reports will be given on (1) recent discoveries in infantile encephalopathy, such as phenylpyruvic oligophrenia by Rh factor, maternal rubella, and thesaurismosis, and (2) new perspectives in quantitative differentiation between psychasthenia and schizophrenia. The participation of foreign colleagues is desired. The program of the conference will include excursions and cultural activities. The fee is 3,000 lire (\$4.80). Address correspondence to: Presidency of 25th National Congress of the Italian Psychiatric Society, Ospedale Neuro-Psichiatrico, Varese, Italy.

International Congress of Catholic Doctors.—Organized by the Irish Guild of St. Luke, SS. Cosmas and Damian (Veritas House, 7 Lower Abbey St., Dublin), the Sixth International Congress of Catholic Doctors will be held in Dublin, Ireland, from June 30 to July 4. Delegates from some 38 countries will consider the moral and medical aspects of world population trends in discussions on demographical, obstetric and pediatric, geriatric, psychological, social, and nutritional problems, and the influence of these problems on emigration. Inquiries may be addressed to Dr. Joseph J. Toland Jr., 4605 Leiper St., Philadelphia 24, president of the Federation of Catholic Physicians Guilds in the United States, or to the Right Rev. Monsignor Donald A. McGowan (National Catholic Welfare Conference, 1312 Massachusetts Ave., N. W., Washington, D. C.).

CORRECTION

HEW Department Budget.—Under this heading in the Washington News in THE JOURNAL, Feb. 6, advertising page 15, the second sentence should have read: "The total is about 200 million dollars less than the budget for the current fiscal year." The figure in the last sentence of that paragraph should have been 1.2 billion dollars.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1954 Annual Meeting, San Francisco, June 21-25.

1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

NATIONAL CONFERENCE ON RURAL HEALTH, Baker Hotel, Dallas, Texas, Mar. 4-6. Mrs. Arline Hibbard, 535 N. Dearborn St., Chicago 10, Secretary.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Mobile, April 15-17. Dr. Douglas L. Cannon, 537 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Hotel Galvez, Galveston, Texas, April 7-9. Dr. Noimand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, Ambassador Hotel, Atlantic City, N. J., April 11-15. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, Philadelphia, Pa., April 8-10. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 6-8. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Roney Plaza Hotel, Miami Beach, Fla., April 5-10. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN COLLEGE OF PHYSICIANS, Municipal Auditorium, Philadelphia, April 25-29. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., April 13-17. Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Commodore, New York, March 11-13. Dr. Marion F. Langer, Room 210, 303 Lexington Ave., New York 16, Executive Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Ambassador Hotel, Atlantic City, N. J., April 10-16. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, The Homestead, Hot Springs, Va., March 14-16. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, Atlantic City, N. J., April 12-16. Dr. Philip Handler, Duke University, Durham, N. C., Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, Atlantic City, N. J., April 12-16. Dr. Cyrus C. Erickson, 874 Union Ave., Memphis 3, Tenn., Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Atlantic City, N. J., April 12-16. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 2-5. Dr. Maurice M. Hoeltgen, 86 East Randolph St., Chicago, Secretary.

CONFERENCE ON MICROCIRCULATORY PHYSIOLOGY AND PATHOLOGY, University of Texas, Galveston, Texas, April 8-9. Dr. Edward H. Bloch, Western Reserve University School of Medicine, Dept. of Anatomy, Cleveland 6, Chairman.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 15-18. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN SECTION, AMERICAN CONGRESS OF PHYSICAL MEDICINE, Newark, N. J., April 10. Dr. H. L. Rudolph, 400 North Fifth St., Reading, Pa., Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, Convention Hall, Atlantic City, N. J., April 12-16. Dr. M. O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

ISTHMIAN CANAL ZONE, MEDICAL ASSOCIATION OF THE, El Panama Hotel, Panama City, R. P., March 24-26. Dr. I. Robert Berger, Box "A," Balboa Heights, Canal Zone.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 11-16. Dr. Eugene H. Dibble Jr., John A. Andrew Memorial Hospital, Tuskegee Institute, Ala., Secretary.

MICHIGAN CLINICAL INSTITUTE, Sheraton-Cadillac Hotel, Detroit, March 10-12. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Mich., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, April 4-7. Dr. E. Royce Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CONFERENCE ON CARE OF THE LONG-TERM PATIENT, Edgewater Beach Hotel, Chicago, March 18-20. Dr. Dean W. Roberts, 615 N Wolfe St., Baltimore 5, Director.

NATIONAL CONFERENCE ON TRICHINOSIS, A. M. A. Headquarters, Chicago, March 1. Dr. S. E. Gould, Wayne County General Hospital, Eloise, Mich., Chairman.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, Jefferson Hotel, St. Louis, March 10-12. Dr. F. M. Foote, 1790 Broadway, New York 19, Executive Director.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 8-11. Dr. Maurice E. St. Martin, Room 103, 1430 Tulane Ave., New Orleans 12, Secretary.

OHIO STATE MEDICAL ASSOCIATION, Columbus, April 13-15. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

PACIFIC NORTHWEST SOCIETY OF PATHOLOGISTS, Amphitheater, Dept. of Pathology, University of Washington School of Medicine, Seattle, April 23-24. Dr. John L. Whitaker, 315 South K St., Tacoma 3, Wash., Secretary.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:
TOPEKA, KANS., March 19. Dr. William C. Menninger, 3617 West 6th Ave., Topeka, Kansas, Governor.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:
FRENCH LICK SPRINGS, Indiana, French Lick Springs Hotel, March 15-17. Dr. Carl H. McCaskey, 20 N. Meridian St., Indianapolis 4, Chairman.
MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.
OMAHA, NEB., Hotel Fontenelle, March 1-4. Dr. Earl A. Connolly, 107 South 17th St., Omaha, Chairman.

SOCIETY OF NEUROLOGICAL SURGEONS, The Waldorf Astoria, New York, April 23-24. Dr. Edgar F. Fincher, Emory University, Ga., Secretary.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Tutwiler Hotel, Birmingham, Ala., March 8-11. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta, Ga., Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, Nashville, April 18-21. Mr. V. O. Foster, 706 Church St., Nashville 3, Executive Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Albuquerque, N. Mex., April 6-9. Sidney B. Clark, 314 U. S. Court House, El Paso, Texas, Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Del Monte Lodge, Pebble Beach, Calif., March 7-8. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ontario, Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Tisiologia, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirimot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitaire d O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Wateville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6^e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Accuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentina, April 21-28, 1954. Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 14-18, 1954. For information write: Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary-General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de Mexico, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida, Cuauhtemoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12^e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8^o andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigaderio Luiz Antonio 651, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8^o andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8^o andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHESOPHAGOGY, Mexico, D.F., Mexico, Feb. 28-March 4, 1954. Dr. Maximo Garcia Castañeda, Humboldt 17, Mexico 1, D.F., Mexico, Secretary-General.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lastmarkade 37, Amsterdam 2, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various Centers, July 16. Final date for filing applications was Jan 16, Sec., Dr. Curtiss B. Hickox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written*. Various centers, Sept. 2. *Oral*. Ann Arbor, Oct. 15-18. To be eligible candidates must have completed thirty-six months of training by October 1. Final date for filing application is May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Chicago, April 1-3 (candidates in the midwest). Los Angeles, June 15-17 (candidates west of the Rocky Mountains and west coast). The closing date for acceptance of applications for Chicago and Los Angeles was Feb. 1. New York, Sept. 22-24 (candidates on the east coast). The closing date for acceptance of applications will be April 1. *Written*. Oct. 18. Final date for acceptance of applications will be May 1. *Subspecialties*. Cardiovascular Disease. Chicago, April 1. Gastroenterology. Chicago, April 2-3. The closing date for acceptance of applications for the subspecialties was Jan. 15. Exec. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May or June. Final date for filing application was Jan. 15. Sec., Dr. Leonard T. Furlow, 600 S. Kingshighway, St. Louis 10.

AMERICAN BOARD OF NEUROLOGY AND PSYCHIATRY: *Psychiatry and Neurology*. Chicago, April 29-30. Final date for filing application was Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II*. Chicago, May 10-17. Final date for filing application is April 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical examinations*, 1954. San Francisco, June 25-29; New York City, Dec. 5-9. Final date for filing applications was July 1, 1953. *Written*, 1955. Various cities, Jan. 24-25. Final date for filing application is July 1, 1954. *Practical examinations*, 1955. Philadelphia, June 10-15; Chicago, Oct. 9-14. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Boston, May 17-21. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: San Francisco, June 17-19. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago 11.

AMERICAN BOARD OF PEDIATRICS: *Oral*. Des Moines, March 19-21; New York City, May 1-3; San Francisco, June 25-27; Chicago, Oct. 8-10 and New Haven, December.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION. *Oral and Written*. Washington, D. C., Sept. 5-6. Final date for filing applications is March 31. Sec., Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Entire Examination*, Galveston, April 17-19. Final date for receipt of case reports was Jan. 1. Final date for receipt of case reports for the fall 1954 examination is June 1, 1954. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PROCTOLOGY: *Part I*. Kansas City, Philadelphia and San Francisco, May 8. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 13-14; New Orleans, Feb. 28-March 1, 1955; San Francisco, Mid-October, 1955; New York City, December, 1955. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minnesota.

AMERICAN BOARD OF RADIOLOGY: *Oral*. Spring 1954. Final date for filing application was Dec. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

DEATHS

Fulkerson, Lynn Lyle * New York; Columbia University College of Physicians and Surgeons, New York, 1907; specialist certified by the American Board of Obstetrics and Gynecology; for many years assistant professor of gynecology at the New York Post Graduate Medical School and Hospital, and instructor in obstetrics and gynecology at Cornell University Medical College; affiliated with the Lutheran Hospital from 1925 to 1933 and the New York Hospital from 1932 to 1948; fellow of the American College of Surgeons; author of "Gynecologic Urology" and "Gynecology: A Textbook of the Diseases of Women"; died in the Harkness Pavilion, Columbia Presbyterian Medical Center Dec. 30, aged 72, of cancer.

Thorne, Fred Sanborn * Boston; born in Augusta, Maine, Nov. 27, 1890; Harvard Medical School, Boston, 1918; assistant in ophthalmology at his alma mater from 1942 to 1947; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the New England Ophthalmological Society, of which he was past vice-president; on the staffs of the Sancta Maria Hospital in Cambridge, Brooks Hospital in Brookline, Symmes Arlington Hospital in Arlington, Mass., Massachusetts Eye and Ear Infirmary and Carney Hospital in Boston, and the Newton-Wellesley Hospital in Newton Lower Falls, Mass., where he died Dec. 6, aged 63, of coronary thrombosis.

Foster, Robert Heath * Meridian, Miss.; born in Shiloh, Miss., in 1885; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the Southeastern Surgical Congress; served during World Wars I and II; began work with the Veterans Administration in 1933; was on duty at Veterans hospitals in Atlanta and in Memphis, Tenn.; at the time of his retirement in Dec. 31, 1949 was surgical and orthopedic examiner and consulting surgeon for the Veterans Administration Rehabilitation Center in Birmingham, Ala.; died in the Anderson Infirmary Dec. 25, aged 69, of pneumonia.

Atha, Henry George * Tucson, Ariz.; Tufts College Medical School, Boston, 1934; certified by the National Board of Medical Examiners; died Nov. 26, aged 51, of bronchiectasis.

Ballenger, William E., Plainview, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; affiliated with St. Anthony's Hospital in Morrilton; died Jan. 7, aged 79, of brain tumor.

Ballentine, Allen DeBow, Bound Brook, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1886; died Dec. 22, aged 91.

Banks, Winifred Davey, East Orange, N. J.; Cornell University Medical College, New York, 1899; affiliated with St. Mary's Hospital in Orange; died in Orange Memorial Hospital in Orange Jan. 1, aged 85, of coronary thrombosis.

Baskin, Morris Jacob * Denver; University of Colorado School of Medicine, Denver, 1918; died in the Presbyterian Hospital Nov. 10, aged 58.

Catron, Isaac Thomas * Atlanta; St. Louis College of Physicians and Surgeons, 1895; veteran of the Spanish-American War; on the staff of the Crawford W. Long Memorial Hospital; died Dec. 23, aged 80, of coronary occlusion.

Doane, Samuel Newman, Arkadelphia, Ark.; Jefferson Medical College of Philadelphia, 1902; on the staff of the Clark County Memorial Hospital; died Dec. 30, aged 76, of cerebral hemorrhage.

Eastwood, Edmund * Dunedin, Fla.; Jefferson Medical College of Philadelphia, 1903; for many years associated with the Veterans Administration, serving as medical officer in various parts of the country; died Dec. 25, aged 72, of cerebral hemorrhage and hypertension.

Horn, Walter Eugene, Portsmouth, Ohio; Ohio State University College of Medicine, Columbus, 1943; entered the Medical Corps, Army of the United States, in December, 1943, as a first lieutenant; promoted to captain in May, 1947; transferred to the regular army in 1948; resigned as a major Feb. 13, 1953; died Dec. 15, aged 35.

Jarrad, George Frederick, Fontana, Calif.; Northwestern University Medical School, Chicago, 1928; died in Kaiser Fontana Hospital Dec. 21, aged 72, of myocardial infarction.

Lake, LaFayette * Clearwater, Fla.; University of Maryland School of Medicine, Baltimore, 1906; an Associate Fellow of the American Medical Association; died Jan. 7, aged 70.

Lau Bach, Herbert George, Mitchell, Neb.; Lincoln Medical College, Eclectic, 1918; died in the Porter Sanitarium, Denver, Dec. 16, aged 73.

Lewis, George B., Syracuse, N. Y.; University of the City of New York Medical Department, 1886; died Oct. 23, aged 78, of a fractured hip and terminal pneumonia.

Miller, Meyer * Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1927; on the staff of the Sinai Hospital, where he died Jan. 11, aged 52, of cerebral hemorrhage and hypertension.

Monroe, Richard Sylvester, Luttrell, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1914; died Jan. 6, aged 65, of acute myocardial infarction.

Moquin, William Neal, San Diego, Calif.; University of Southern California School of Medicine, Los Angeles, 1952; liaison officer and engineering instructor with the French army during World War II and was awarded the Croix de Guerre for his work; formerly resident at Ventura (Calif.) County Hospital; affiliated with the Quintard Hospital; died Dec. 12, aged 39.

Randell, Harold Edward * Chicago; Chicago Medical School, 1937; served during World War II; died Jan. 15, aged 43, of acute coronary thrombosis.

Rapp, Edwin Wallace * Memphis, Tenn.; Rush Medical College, Chicago, 1919; served as assistant professor of pathology at Medical College of Georgia in Augusta; served during World War II; formerly on staffs of the Veterans Administration hospitals in Montgomery, Ala., and Atlanta and Augusta, Ga.; died Dec. 25, aged 62.

Rice, Alfred George * Chandler, Ariz.; University of Illinois College of Medicine, Chicago, 1931; member of the American Trudeau Society; served during World War II; at one time medical director of the Morgan County Tuberculosis Sanatorium in Flint, Ala.; died in Mesa Nov. 19, aged 46, of injuries received in an automobile accident.

Rohrback, Otto Herman, Chicago; Northwestern University Medical School, Chicago, 1902; formerly associate professor of obstetrics at the University of Illinois College of Medicine; served on the staff of the Norwegian-American Hospital; died in Grant Hospital Jan. 18, aged 79, of hypertensive heart disease.

Rovitti, Peter A. M. * Wilmington, Del.; Baltimore University School of Medicine, 1902; served as coroner's physician; on the staff of the Wilmington General Hospital; died Dec. 19, aged 74, of metastatic carcinoma.

Shane, Hugh, Marshall, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1931; served during World War II; died in the Kahn Memorial Hospital Nov. 18, aged 49, of bronchial asthma and emphysema.

Smith, Jacob C. * Tarentum, Pa. (licensed in Pennsylvania in 1901); president and director of the Federal Savings and Loan Association; affiliated with the Allegheny Valley Hospital, which he helped to found; died Dec. 29, aged 82, of coronary occlusion.

* Indicates Member of the American Medical Association.

GOVERNMENT SERVICES

ARMY

Modified Affiliation Plan for Army Hospitals.—More than 50 medical colleges and large civilian hospitals throughout the United States have entered into an informal agreement with the Army Surgeon General whereby each will furnish a limited number of highly qualified doctors and dentists for key specialist assignments in a 1,000-bed general hospital for employment only in time of a major national emergency.

This agreement is a modification of the reserve hospital plan used in both world wars under which a formally organized group was required to conduct military training and secure a full complement of commissioned officers. The modified arrangement permits the hospital or medical school to retain these key professional staff members, selected for the unit for several months after the initial impact of the emergency. These personnel will not be required until the reserve hospital units are called to active duty and the administrative and housekeeping personnel are organized and trained.

The modified affiliation program interferes in no way with the traditional establishing of reserve hospital units by those institutions desiring to do so. In fact, a school or hospital may have both types of participation in the Army's plans for medical national defense. Members of school faculties or hospital staffs who wish to continue in reserve activities at those institutions where only the modified affiliation program exists may associate themselves with a local reserve troop program unit or join the medical section in the reserve school. The modified affiliation units will be members of the Army of the United States. The Adjutant General of the Army has reserved the numbers utilized by the sponsored units in previous conflicts for reissue as appropriate.

"Experience in World Wars I and II and the Korean conflict has shown that professional specialists need only short periods of military instruction before engaging in their primary Army duties," the Surgeon General said in explanation of the modified affiliation program.

Although the program followed in those wars and in Korea was generally satisfactory, budgetary restrictions, mounting overhead costs, lack of space, shortages of personnel in certain categories, and increased civic responsibilities imposed on both hospitals and staff members were among the major factors that brought about the new plan. At the time the Army activates the headquarters and administrative complement of the modified affiliation unit for training in military procedures, the institution would be requested to supply only a chief nurse and one other nurse, two Medical Corps captains and one Dental Corps captain, and one dietitian first lieutenant. Several months later the institution would be asked to select members of its professional staff and have them prepare applications for commissions in the Army of the United States. The appropriate Army commander would process the appointments, publish necessary orders, and arrange for required military indoctrination so timed as to allow these officers to join the unit by the target date.

The colleges or hospitals in this "gentlemen's agreement" will not be required to provide a formal organization, appoint officers, nor agree to conduct training programs in order to be accepted in the plan. The modified affiliation plan, however, does not permit an officer to use it as a basis for military deferment if he should be called separately for active duty prior to the activation of the sponsored unit.

Three-Year Residency in Anesthesiology.—The Army Medical Service residency program in anesthesiology will be increased in term to three years beginning July 1 to give candidates additional training; it has been announced by Major Gen. George E. Armstrong, Surgeon General.

The new plan provides for the two years of clinical training required for American Board of Anesthesiology certification and an additional year of research and development training coordinated with the basic sciences in anesthesiology.

Selected Medical Corps officers will spend their first year of the three-year residency at Walter Reed Army Medical Center, Washington, D. C. The second year will be presented at the Army Medical Service Graduate School, Walter Reed Army Medical Center, and will be devoted to research and development. The last year of residency will be spent at one of four Army hospitals, and the candidates will have a summation of training with clinical and teaching experience. The four hospitals to be utilized in the program are Brooke Army Hospital, Fort Sam Houston, Texas; Fitzsimons Army Hospital, Denver; Letterman Army Hospital, San Francisco; and Walter Reed Army Hospital, Washington, D. C.

NAVY

Surgeon General Returns from Far East.—The Surgeon General, Rear Adm. Lamont Pugh, has completed a 20-day informal visit to Navy Medical Department activities in the Pacific Northwest, Aleutians, Korea, Japan, Guam, Kwajalein, Midway, and Hawaii, and has returned to Washington. The purpose of this trip was to meet with Medical Department personnel in the field, to hear and to discuss their problems, to explain current Medical Department policy, and to obtain from the actual operating forces, information on which to base future policy. The Surgeon General addressed Medical Department personnel at the Naval Hospital, Yokosuka, Japan, those assigned to the Third Marine Division in Japan, the staff of the hospital ship Repose, and those assigned to the First Marine Division in Korea.

VETERANS ADMINISTRATION

Vacancies at Various Hospitals.—Various Veterans Administration hospitals throughout the country urgently need social workers, dietitians, biochemists, x-ray and medical technicians, and therapists of all types. Applicants are requested to contact the personnel office at any VA hospital, regional office, center, or domiciliary for information or to write directly to the Veterans Administration, Washington, D. C.

Annual beginning salaries and salary ranges for these positions are: therapists (educational, corrective, manual arts, physical, and occupational), \$3,410 to \$5,060; x-ray technicians, \$3,175 to \$3,795; medical technicians, \$3,175 to \$4,205; social workers, \$4,205 to \$5,940; dietitians, \$3,410 to \$5,940; and biochemists, \$4,205 to \$7,040. Most of these positions require college training, and social workers need graduate training. For the higher paying positions appropriate work experience is needed. X-ray and medical technician applicants may qualify on experience alone.

Annual Institute in Psychiatry and Neurology.—Under the sponsorship of the Veterans Administration Hospital, Lyons, N. J., the New Jersey Neuropsychiatric Association, and the New Jersey District Branch of the American Psychiatric Association, the annual institute in psychiatry and neurology will be held at the hospital, April 21. Drs. Daniel Blain, Washington, D. C., Stephen P. Jewett, New York, and Harvey T. Tompkins, Washington, D. C., will serve as moderators for the following programs: "Emotional Deprivation in Infancy and Its Implications in Child Psychiatry," Lauretta Bender, New York; "The Administrator's Place in Psychiatry," Arthur P. Noyes, Norristown, Pa.; "Sexual Psychopathology and Crime," Benjamin Karpman, Washington, D. C.; and "The Origin of Human Movement," Temple S. Fay, Philadelphia. Dinner, at 7 p. m., will be followed by a presentation entitled "Failures in Psychotherapy," by Dr. Leo H. Bartemeier, Detroit. Military personnel and full-time VA personnel will be exempt from the registration fee of \$1, which will include a copy of the proceedings of the institute. Additional information may be obtained from Dr. Crawford N. Baganz, manager of the hospital.

FOREIGN LETTERS

BRAZIL

Intracranial Cysticercosis.—Dr. Antonio França Netto presented to the Associação Paulista de Medicina a report on 47 patients with intracranial cysticercosis treated in the São Paulo Hospital das Clínicas from Jan. 1, 1946, to Dec. 31, 1952. These patients were observed among 1,636 neurological patients of all kinds and represent 2.85% of the larger group. The age distribution by 10-year groups showed a maximum concentration in the first decade of life (no patient was less than 2 years old). The rest of the patients were fairly evenly distributed between the ages of 10 and 70 years. The diagnosis could not be proved in two cases. In 5 of the remaining 45 patients the diagnosis was based on a positive Weinberg's reaction in the blood and on the presence of eosinophilia, with concomitant intestinal teniasis in one, and was therefore considered incomplete. The diagnosis was confirmed by postmortem examination in five cases, and by operation in one. In 26 the diagnosis was based on alterations in the cerebrospinal fluid; in 2 on the finding of intracranial calcifications; and in 6 on both. Although changes in the spinal fluid occurred in 37 patients, they were sufficient to establish the diagnosis in only 32. Alterations in the spinal fluid sufficient to permit the establishment of the diagnosis were a positive Weinberg's reaction and the presence of eosinophils. The latter were present in 21 patients and a positive Weinberg's reaction in 32. In 11 hypoglycorrhachia was observed. In relation to the clinical findings there were 25 cases of intracranial hypertensive syndrome; 12, of intracranial focal neurological syndrome; 7, of convulsive syndrome (of which 4 were focal); 2, of radiculomedullary syndrome; and 1, of a mixed form (medullary, but having a secondary intracranial hypertensive syndrome). The disease ran a favorable course, with improvement in 24 patients; 9 were discharged unimproved. The condition of one became worse in the hospital. In three it was impossible to know the exact condition at the time of discharge, and in eight the course was unfavorable, ending in death. In four of the fatal cases the diagnosis was established during life and in four at autopsy.

Intestinal Perforation in Premature Infants.—At a meeting of the Associação Paulista de Medicina Drs. Pedro Refinetti and Virgílio Carvalho Pinto of the São Paulo Filomena Matarazzo Maternity Hospital reported 9 premature infants who died in that hospital within 53 days. During that period there was always at least one sick premature infant in the hospital nursery. The disease usually began with a slight gastrointestinal disorder. In five of the infants the subsequent symptoms were predominantly abdominal and in four predominantly pulmonary. Of the five with abdominal symptoms, three were operated on and showed perforations in the jejunum, ileum, and ascending colon respectively. The authors believe that a single causative agent was probably responsible in the five cases. All infants weighing more than 2 kg. were almost free of any disease. The authors concluded that a combination of the increased intra-intestinal pressure and the presence of the ulcerations frequently observed in premature infants caused the perforations.

High Direct Cephalic Presentation of the Fetus.—Drs. Oswaldo Lacrete and Bernardo Blay (*Rev. gynec. e obst.* 47:553, 1953) reviewed 15 cases of high direct cephalic presentation of the fetus in women attended from 1949 to 1952 at the Leonor de Barros Maternity Hospital of the city of São Paulo. In some cases, the fetal head enters the superior strait of the pelvis with the sagittal suture oriented in the anteroposterior diameter and remains in this position. This presentation presents a special problem about which little appears to have been written. Their 15 cases were observed in 25,514 deliveries (a rate of 0.058%). Eight of the women were multiparas and seven primiparas. Nine fetuses were of more than average weight

(one weighed 5.06 kg. and one 4.26 kg.). According to German authors, the early rupture of the membranes is a causative factor in high direct cephalic presentation. In the present series premature rupture was observed in six.

DENMARK

Control of the Drugs of Addiction.—The Danish Minister for Internal Affairs appointed a committee in November, 1950, to inquire into the medical and administrative problems raised by morphine and other euphoria-producing drugs. The findings of this committee are published in *Ugeskrift for Læger* for Nov. 5 and 12, 1953. The committee finds that, in spite of measures taken against these drugs in recent years, there has been no reduction in their consumption. Recent investigations have demonstrated the futility of attempting to cure addicts in an advanced stage of addiction. It has hitherto been very difficult to catch addicts among physicians at a time when their addiction is still curable. The part played by the theft or smuggling of drugs of addiction is comparatively small. The most important factor is the medical prescription—genuine or forged. Although the forging of prescriptions may be on the increase, genuine prescriptions still play a very important part and reflect conditions amenable to reform. Physicians should be encouraged to cooperate with pharmacists and to study their reports to the public health authorities. Voluntary cooperation among physicians should enable them to deal with the addict who goes from one physician to another and obtains small quantities of drugs from each. The supply of heroin could be completely cut off without any new legislative measure by the simple device of refusing to issue any import license for it. The amphetamines are more dangerous because their sale has not hitherto been restricted by law. It may not be advisable to forbid the use of amphetamine solutions in hospitals, but physicians should not prescribe them in their office practice. In England, Switzerland, Sweden, and Norway physicians abusing their right to prescribe drugs may have this right withdrawn in respect of drugs of addiction. At present there is no such check on physicians in Denmark, but the committee would like to see it adopted. Physicians should be urged to be just as careful in prescribing drugs of addiction for themselves as for their patients, and when the public health authorities have evidence of dangerous prescribing in a given case, the physician in question should be made to keep a special record of his prescription of such drugs, with the names and addresses of his patients and why they were thus treated.

Artificial Insemination.—Since 1948 Denmark, Finland, Norway, and Sweden have been considering the problem of legal regulation of artificial insemination. Although minor national differences of legal or social importance have prevented the tentative drafting of uniform laws suitable for Scandinavia as a whole, all the special committees from these countries have agreed in not recommending laws directed against artificial insemination in principle. They have also agreed on the need for laws providing for the legal status of the offspring of insemination when the mother's husband has consented to this action. The composition of each national committee has also been much the same in the different countries, with the legal and medical professions well represented on each. In Denmark the committee includes two physicians and three lawyers, and two of the latter are women.

The report of the Danish committee has been given a mixed reception. Speaking at a meeting of the Danish Medical Association in September, 1953, Dr. Mogens Fenger expressed great concern over the responsibility put on the medical profession for the proposed practice of artificial insemination. He noted that only the Danish committee has proposed laws governing the insemination of unmarried women. It would seem that the

physician alone will have to decide whether an unmarried woman is qualified to educate and maintain her child. How, Dr. Fenger asked, could a gynecologist, after consultation with the unmarried woman's regular doctor, give useful advice without the assistance of a psychiatrist? It is also proposed that the choice of a suitable donor should devolve on the mother's doctor. How, as he looks about him, can a doctor be sure that his choice of donor is wise and based on a truly intimate knowledge of his qualifications for this function? Dr. Fenger commented on the provision that it is incumbent on a physician to put a reasonable limit on the number of inseminations to be required of one and the same donor who should, presumably, not be the physician himself. Dr. Fenger also remarked that the committee had omitted to provide for the unmarried man who wants a child produced by insemination.

ITALY

Hematology Convention.—The 11th national convention of the Italian Society of Hematology was held at the medical clinic of the University of Rome, May 10 and 11, 1953. Professor Di Guglielmo, Rome, was the chairman. Professor Heilmeyer discussed the treatment of leukemia with tetraethylammonium (TEM). He recalled briefly the chemical and pharmacological characteristics of the new preparation and reported on his experimental and clinical studies. The drug did not have any particular action on the red blood cells of rats that were intoxicated by it, but it did influence in proportion to the doses administered, the leukocytes and especially the neutrophils and the platelets. With massive doses, the number of neutrophils decreased markedly and the platelets often disappeared. The marrow revealed hypoplasia and the spleen reduction of the lymph follicles and a lively movement of the reticulohistocytary cells. The inhibiting action of tetraethylammonium on the leukocytes and platelets seems to be easily reversible.

The administration of the drug to persons with leukemia is followed by a pronounced decrease in the number of leukocytes and platelets. The drop in the number of leukocytes may often continue for some time, especially if maintenance doses are given. The decrease in the number of platelets may cause hemorrhage and necessitate interruption of the therapy and the institution of symptomatic treatment. A second course of tetraethylammonium is usually as effective as the first. Some patients tolerated it better than irradiation therapy and urethane; many preferred it; and only a few were not satisfied with it. Professor Heilmeyer is in favor of using tetraethylammonium in leukemia on a wide scale provided proper precautions are taken.

Professor Fonio reported on clot retraction and discussed the results of the experiments he and his associates made to study the importance of platelets in this phenomenon. He discussed the various aspects of the physiology of the platelets and demonstrated that they are greatly increased in persons who live at high altitudes. He also showed that an altered function of the platelets may produce a hemophilia-like syndrome that often remains undiagnosed. He recalled how easily the clot retracts at high temperatures and suggested that the use of great heat in the treatment of hemorrhage in persons with hemophilia will produce a lasting hemostasis.

Professor Juergens of Basel reviewed the present position of bishydroxycoumarin (Dicumarol) products in anticoagulant therapy and said that vitamin K₁ is an antidote to the hemorrhagic phenomena resulting from treatment with bishydroxycoumarin. His research work dealt mainly with Marcoumar and Konakion. Marcoumar is 3-(1'-phenyl-propyl)-4-hydroxycoumarin. It lowered the concentration of the 7th factor and the prothrombin in experimental animals, but the 5th factor was not changed. This effect is obtained by administering less (or slightly more) than 1 mg. of Marcoumar per kilogram of body weight, depending on the species of animal tested, and may persist for more than 10 days. The toxic action of the substance depends on the intensity of its action on the coagulation.

Konakion (synthetic vitamin K₁) was active not only on hypoprothrombinemia caused by bishydroxycoumarin, Marcoumar, or other similar substances but also on severe hypoprothrombinemia secondary to removal of the liver. The fact that vitamin K₁ in doses of 50 mg. per kilogram of body weight can induce

regeneration of the coagulation factors, the prothrombin, and the 7th factor, even when the liver has been removed, has both theoretical and practical importance. These factors were found in the blood of animals from which the liver had been removed 6 to 10 hours after the administration of Konakion. Professor Juergens concluded that Marcoumar may be of great clinical value and that all the accidents that it may cause are rapidly controlled with vitamin K₁.

Professor Villa, with the collaboration of Drs. Polli and Bussi, studied the normal and abnormal structure of nuclei of the blood cells at rest and during growth and division. They showed that the nucleus of the erythrocytes in vertebrates is included in the group that biologists define as "nucleus with clumps and filaments." The nuclear characteristics observed during the evolution of erythroblasts consist of the early emergence of masses that give a positive Feulgen reaction in the nucleus at rest. The mitotic chromosomes of the erythroblasts give a highly positive Feulgen reaction. In pathological states the megaloblasts in the initial phase of maturation present chromosomes that are long and thin and give a slightly positive Feulgen reaction; in the "metaphase" phase they are contracted and give a "Feulgen reaction." The speakers found no significant differences in the amounts of nucleic acid in normal and abnormal leukocytes, or between the amino acids present in the nuclei, the isolated chromosomes, and the nuclear histone of normal and leukemic cells.

Studies on the lipid fractions of the entire leukocytes and of normal and abnormal nuclei of leukocytes of human beings and horses revealed no marked differences between the normal leukocytes of the two species, but marked differences between normal and abnormal cells in men. This difference is noted especially in the nuclei. The speakers studied the structure of the nuclei of living cells, chiefly blood cells, and found an excess of compact chromatin in the leukemic elements by means of microstratigraphic investigations that aimed at defining the spatial distribution of compact chromatin in the nucleus of normal and leukemic lymphocytes. Studies of the cytochemical aspects of the structure of the blood cells indicated the importance and difficulty of the study of cytoenzymes.

NORWAY

Misguided Public Authorities and the Insane.—At a recent public meeting, Dr. Karl Evang, who heads the Public Health Service in Norway, spoke more in sorrow than in anger (but with plenty of both) about the attitude of central and local public authorities who compete with each other in claiming lack of funds and disclaiming the ability to meet the calls of the Public Health Service regarding beds for patients with chronic mental diseases. In 1948, Dr. Evang budgeted for an annual expenditure by the central government of 50 million kroner in the coming five year period for the establishment of various types of hospitals. In 1950 the actual sum spent was 18,800,000; in 1951 it was 22,800,000; and in 1952 it was 37,900,000. It was not till 1953 that the sums spent approached the sums for which he had budgeted. He admits that the need for more housing by the general public has been the worst obstacle to the building of medical institutions.

At present the asylums in Norway can accommodate only half the total number (about 16,500) of insane persons needing some form of treatment. Some of them are boarded out in private homes (farms), and though this system is not without merits, it would be well, in Dr. Evang's opinion, to reduce the number of such private boarders by about half. To do so, more asylum accommodation must be provided. More important than the lack of funds for this purpose during the postwar period has been the shortage of material and labor. Dr. Evang enlivened this rather somber picture by an account of the campaign against the venereal diseases which in the course of the last five years has effected a reduction of expenses to less than one quarter of what they were earlier. The number of patients with gonorrhea is at present only one-third of the lowest figure for the prewar period, and the number of those with syphilis is three-quarters of the average prewar figures, giving an all-time low of about 300 new cases of syphilis for all Norway in 1952.

CORRESPONDENCE

THE CORONER SYSTEM

To the Editor:—Dr. Turkel's article "Merits of the Present Coroner's System" was excellent (THE JOURNAL, Nov. 21, 1953). Although I have never held public office, I have been associated with the coroner's office of Detroit for 41 years. In the same issue, an editorial, which states the real problem very clearly, ends with the unfortunate sentence, "Although Dr. Turkel has not submitted convincing evidence that it is better to keep the office in the county politics than to put it under the merit system, he has shown that it is possible to do good work under great handicaps." This reexpresses an almost universal misconception of the truth. In Wayne County, Michigan, the county auditors have always usurped the right to appoint the medical examiners, because the auditors hold the purse strings. The coroners have never been allowed to exercise that prerogative that the state law expressly gives them. The county auditors have never, in the past 41 years, appointed a properly trained medical examiner to serve Wayne County. The appointments have always been made on the basis of potential political patronage.

The act recently passed by the Michigan legislature, if implemented by a vote of the people, will abolish the office of coroner and confirm the power of the auditors to make the appointment of medical examiners part of the county patronage. The office will then become a branch of the prosecuting attorney's machine. The other alternative under this law is that the state police will have jurisdiction. The value of the coroner under Anglo-Saxon law has always been that his office is independent of any prosecuting or police agency. He is not dependent for his job on a prosecutor who is out to make a record of a high percentage of convictions, nor is he under the police who get "merit" counts for preparing successful cases against suspects. If you think that pressure from prosecutors and police to influence the findings of medical examiners is theoretical, let me assure you that 41 years' experience in these matters is quite to the contrary. A medical examiner should be protected in his right to determine the cause of death. His duty ends there. He is not a prosecutor, and he is not a policeman. He should not be under obligation to or pressure from either.

The self-serving interests that are trying to take the matter "out of politics" are really concerned with abolishing the coroner's independent position and strengthening the local political machine. Like all such propaganda the objectives as publicized seem very pious to the uninitiated. Whether you call him a coroner or medical examiner makes little difference. The important objective is that he should have the powers that Anglo-Saxon law has given him almost since the Magna Charta and that he should be his own man, free from the pressure of prosecutors or homicide squads. All physicians know what sort of a system should be established. The voters want a good system, but machine politicians have sold them something quite different. The medical examiners or coroners, whichever name is selected, should be appointed on the basis of clear-cut qualifications laid down in a properly worded statute. They should be appointed for a relatively long term so that the matter is taken out of changeable political climates, and they should be chosen by the circuit judges not by prosecutors or policemen and not as part of a party ticket at county elections.

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To the Editor:—The article by Dr. Turkel (*J. A. M. A.* 153: 1086 [Nov. 21] 1953) and the editorial in the same issue on the coroner system and the medical examiner are timely but not complete. In Los Angeles County we have a coroner and the system has been very successful, even more so than the figures given in Dr. Turkel's article would indicate. This is

because competent full-time autopsy surgeons and a competent toxicologist are attached to the office. They are all Civil Service appointees. The office has the full cooperation of the sheriff's office, police departments of the many cities in this county, the district attorney's office, the morticians, and the medical profession. Furthermore, this office has a better set of state laws to work with than those in most other states.

There has been much discussion about the merits of the two systems, but to be successful either system must have adequate state laws. The law must give the officials enough authority to proceed in a case. In some states, they have to ask permission for an autopsy, and often, when an autopsy is most needed, the relatives refuse. The law must require that a properly trained pathologist and toxicologist be employed. In counties too small to justify such an expenditure, the state should make such services available or one unit could be employed jointly by two or more counties. No matter what his title is or whether he is appointed or elected, success or failure depends on the quality of the person holding the position. If he is efficient and supported by adequate laws, then and only then can a coroner do good work.

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To the Editor:—In reading your editorial comment (*J. A. M. A.* 153:1100 [Nov. 21] 1953) concerning the article by Dr. Turkel in the same issue, I wish to call attention to the fact that both the coroner of Los Angeles and the coroner of San Francisco are appointed from Civil Service lists and that no coroner in the state of California runs for election on a party ticket. The concept of government in California is such that all public officials below the state level are either Civil Service appointees or elected nonpartisan candidates. It is encouraging to see some evidence that the name-calling period may be over and that all parties interested in good government can join forces.

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SOCIAL SECURITY FOR PHYSICIANS

To the Editor:—A menacing specter is on the horizon with the extension of social security to include the medical profession by the "benefactors" in Washington. As was pointed out before, physicians do not retire at the age of 65. The long, arduous, and expensive training of a physician does not make it economically practicable for him to retire at such an early age. Why should a physician past 65 begin to contribute to a pension scheme, if he has no intention of ever retiring? The minimum of \$400 a year is ridiculous, for if anyone makes this amount, or even double, only a politician can figure out how he can make both ends meet and pay 2.5% to the government on it. An intern or resident is lucky if he makes that much, and it is stark irony to subject him to such a tax.

An unskilled Mexican laborer told me that he makes \$17 a day. According to recent report in *Medical Economics*, some physicians on Park Ave. in New York City do not make that much, and I am sure that there are quite a few others throughout the country who put service before remuneration and do not earn that much. The idealism of service to humanity, traditional with medicine, does not enter the sphere of the labor unions, but in this case we are classed with them, much to our disadvantage. Even Bismarck with his pension plan, much decried in the past as socialistic, did not envision such radical extension of the scheme.

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COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

ADDITIONAL HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in Chicago, Feb. 5, 1954:

U. S. Army Hospital, Ft. McClellan, Ala.
U. S. Army Hospital, Flagstaff, Ariz.
St. Joseph's Hospital, Nogales, Ariz.
U. S. Army Hospital, Barstow, Calif.
U. S. Army Hospital, Lompoc, Calif.
Memorial Hospital, Modesto, Calif.
Needles Municipal Hospital, Needles, Calif.
Porterville State Hospital, Porterville, Calif.
Balboa Hospital, San Diego, Calif.
U. S. Army Hospital, San Pedro, Calif.
East Hartford Hospital, East Hartford, Conn.
Miami Heart Institute, Miami Beach, Fla.
Santa Rosa Hospital, Milton, Fla.
Lily White Hospital, Tampa, Fla.
Douglas-Coffee County Hospital, Douglas, Ga.
Dodge County Hospital, Eastman, Ga.
Mary Lorton Nursing Home, Belleville, Ill.
Kenmore House, Chicago
Veterans Administration Research Hospital, Chicago
Gibson Community Hospital, Gibson City, Ill.
Richland Memorial Hospital, Olney, Ill.
Allen's Baptist Sanitarium, Robinson, Ill.
Grundy County Memorial Hospital, Grundy Center, Iowa
Ellinwood District Hospital, Ellinwood, Kan.
Kiowa District Hospital-Clinic, Kiowa, Kan.
Phillips County Community Hospital, Phillipsburg, Kan.
Lutheran Hospital, Scott City, Kan.
Donaldsonville General Hospital, Donaldsonville, La.
Montebello State Hospital, Baltimore
Clinical Center, National Institutes of Health, Bethesda, Md.
Veterans Administration Hospital, Boston
Veterans Administration Hospital, Brockton, Mass.
Veterans Administration Hospital, Ann Arbor, Mich.
St. Luke's Infirmary, Duluth, Minn.
Franklin County Memorial Hospital, Meadville, Miss.
U. S. Army Hospital, Camp Crowder, Mo.
Roberts-Worley Clinic-Hospital, Sweet Springs, Mo.
Gunn Clinic-Hospital, Versailles, Mo.
Glacier County Memorial Hospital, Cut Bank, Mont.
Granite County Memorial Hospital, Phillipsburg, Mont.
Schuyler Memorial Hospital, Schuyler, Nebr.
U. S. Army Hospital, Albuquerque, N. Mex.
Fort Stanton Medical Center, Fort Stanton, N. Mex.
Madison Park Hospital of Adelphi College, Brooklyn
Yancey Hospital, Burnsville, N. C.
Gravelly Sanatorium, Chapel Hill, N. C.
Spastics Hospital, Charlotte, N. C.
Union Memorial Hospital, Monroe, N. C.
Veterans Administration Hospital, Salisbury, N. C.
St. Gerard's Community Hospital, Hankinson, N. Dak.
Community Hospital, Rolette, N. Dak.
St. Charles Hospital, Toledo, Ohio
Santiam Memorial Hospital, Stayton, Ore.
Colver Hospital, Colver, Pa.
Belvedere General Hospital, Pittsburgh
Willow Grove Hospital, Willow Grove, Pa.
West River Crippled Children's Hospital, Hot Springs, S. Dak.
Crippled Children's Hospital and School, Sioux Falls, S. Dak.
Bellville Hospital, Bellville, Texas
New Braunfels Hospital, New Braunfels, Texas
Southmore Hospital and Clinic, Pasadena, Texas
U. S. Army Hospital, Texarkana, Texas
Shipman Clinic-Hospital, Vernon, Texas
U. S. Army Hospital (Proving Ground), Tooele, Utah
U. S. Army Hospital (Ordnance Depot), Tooele, Utah
U. S. Army Hospital, Camp Hanford, Wash.
Valley Convalescent Hospital, Charleston, W. Va.
St. Joseph's Memorial Hospital, Hillsboro, Wis.
Johnson County Memorial Hospital, Buffalo, Wyo.
Campbell County Memorial Hospital, Gillette, Wyo.
Adjuntas Health Center, Adjuntas, P. R.
Anasco Health Center, Anasco, P. R.
Corozal Health Center, Corozal, P. R.
Dorado Health Center, Dorado, P. R.
Las Marias Health Center, Las Marias, P. R.
Las Piedras Health Center, Las Piedras, P. R.
Naranjito Health Center, Naranjito, P. R.
Orocovis Health Center, Orocovis, P. R.
Rincon Health Center, Rincon, P. R.
Rio Grande Health Center, Rio Grande, P. R.
San German Health Center, San German, P. R.
Trujillo Alto Health Center, Trujillo Alto, P. R.
Vega Baja Health Center, Vega Baja, P. R.

BUSINESS PRACTICE

This is the second in a series by these authors on various phases of business practice. In this article the authors suggest physicians collect their own fees.—ED.

COLLECTION OF FEES

*Chester Porterfield
and
Geoffrey Marks, Seattle*

More words have been written about collection procedures than any other single aspect of medical practice administration. More schemes have been devised to "bring in the money" than any physician could possibly apply. More misunderstandings of the true nature of the collection problem have been fostered by their operation and more disappointments incurred by their failure than we could possibly enumerate. Customarily the blame for failure is placed by the frustrated physician on his secretary, in getting out statements; on the collection follow-up system, for not producing automatic results; on the collection agency, for its inability to track down and collect from unwilling patients; and most frequently, on the ungrateful and dishonest patients themselves.

IS THE SECRETARY TO BLAME?

When a doctor blames his secretary for not quoting the fee or making payment arrangements, he forgets that he has so often told the patient who asks about these things, "Don't bother about that now; we just want to make you well," or, "Don't worry about the bill; my charges are reasonable." For this reason, when the patient has ignored several statements, and the secretary suggests that "we would like you to pay something on your account," the patient replies that "the doctor said I didn't have to worry about it." Or, in instances of major surgery of which we have known, the "reasonable" charge the physician brushed away in advance turns out to be the equivalent of three or four months' wages for the patient's family! Local medical society grievance committees are more than slightly familiar with such situations. When the secretary or bookkeeper is receiving blame for laxity in getting out statements, we often find that the physician has the annoying and disrupting habit of deferring charges beyond any reasonable bounds. He may see a patient from three to six times during the month in the course of extensive diagnostic work and continue to postpone the assignment of charges for one or another reason. When he is finally cornered into setting his fees for all the various services performed, his office then bills them, sometimes two or more months after the services were performed, and he cannot understand why the patient exhibits a similar degree of neglect in meeting the bill.

IS THE SYSTEM TO BLAME?

When one or another method of collection program is attempted, the physician's most frequent error is to choose a system that is commercial in its approach and tone and impersonal in its application. Having bought the stickers to paste on statements or the series of "canned" printed form letters to be sent out, he will either expect them to operate automatically, which they will not, or will engage in a flurry of collection action for a month or two, then forget about the system entirely until the next time he finds his receipts have dropped off. We will have more to say hereafter about the various types of collection approach but for the moment will merely point out that whatever their merits, none of them can operate effectively unless they are applied regularly and intelligently and without playing favorites.

IS THE COLLECTION AGENCY TO BLAME?

When accounts are turned over for collection, we hear the agency abused, often in the same breath, for being too tough and for not getting the money. When the physician suddenly

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decides to "clean house" and turns in a long list of accounts there will often be many who have received not more than three or four statements and no warning from the office that the bill was considered delinquent. Hence the first contact by the collector can come as a severe shock, no matter how gently it is phrased, and the patient may storm into the physician's office bursting with righteous indignation. Cornered, unwilling, and seemingly unable to admit the impulsiveness that prompted him arbitrarily to turn the account over, physicians have even said, "The agency had no business to threaten you this way. They came into my office and took your account without my knowing it," or something to similar effect. Such a physician does not back up the collection medium that he has selected and authorized, and his shifting of the blame, rather than improving the situation, merely results in the patient concluding that his office must be an extremely poorly administered one. On the other hand, he frequently threatens collector action and does not follow through with it. The patient then concludes that his bark lacks bite and promptly relaxes again. When, after months have elapsed, he carries out his threat, without further warning, the patient is rudely jolted, feels cheated, and becomes just as indignant. Perhaps by the time action is taken, it is found that the name or address or both are incorrect or inadequate; when the patient has moved without leaving a forwarding address, the doctor's records usually are lacking the business address, the referrer's full name and correct address, or any other subsidiary data and clues that might aid in locating him. Small wonder that, even with the credit association and other tracing facilities at the collection agency's command, so high a percentage of accounts must be reported as untraceable. Yet the physician will blame the collector for his inability to make up for the carelessness and slipshod recording of data, which began with the doctor himself.

IS THE PATIENT TO BLAME?

Finally, the doctor blames the ungrateful patient. So far we have been discussing the physician's administrative shortcomings; now we must consider a much more critical phase of his relations with patients. In fact, to jump from the specific topic of this paper to the sweepingly general, we can do no less than to state our strong belief that in his interpersonal relations with his patients lie the causes of the physician's success or failure in every aspect of his practice. While breakdowns in these relationships may occur in various other areas, they are currently most prevalent in the economic sphere, to the extent that they have generated a rather vicious type of class warfare between members of the healing professions on the one hand and the general public on the other. This antagonism may well go far deeper than the economic level, at which it is most apparent in our civilization. In most cultures and societies that the social anthropologists have been able to study, the status of the "medicine man" is a special one within the group. Whether he doubles as priest, shaman, or diviner, he is set apart from the remainder of the people. He deals with mysteries forbidden all others and holds the power of life and death over them. He is therefore both feared and honored, trusted and hated. He lives by tribute levied upon all, and when he fails, he is violently cast out. In our complex civilization, it is difficult to recognize or state the physician-patient relationship in these basic terms that still apply in primitive cultures, yet until fairly recent times it bore a strong resemblance to them. The apparent change arrived with the Industrial Revolution, which made financial return our primary measure of success and changed the physician's status from that of a largely subsidized practitioner to that of an independent businessman or entrepreneur. He held to his traditional code of ethics, which requires that he give freely of his art and skill to all who need and seek his services; at the same time he was forced to accept new economic obligations, which demand that he receive for those services a fee that will permit him to buy the goods and services he himself needs.

The physician thus finds himself in an anomalous position as he strives to fulfill his two conflicting goals. When he does not recognize the contradiction, he permits it to control his actions and attitudes on the emotional level and thus to warp

and distort his relations with his patients. This can hardly fail to provide a focal point for the later resentment or antagonism that is latent in the attitude of patients toward his profession and that will be encouraged by every sign of the physician's anxiety or uncertainty. While this conflict is probably inherent in our present culture, the physician who recognizes it can, to a large extent, redirect it so far as his own practice is concerned; in fact, he can use it to his own advantage. Our culture demands that each person "sell" his services in order to live, but the physician does not go into the market place and offer his services; instead persons seek him out to obtain them, usually with little thought beyond the immediate urgency of their need. While they know there will be expense and are concerned about the cost, this concern at first merely contributes to their anxiety whether the physician of their choice can and will cure them. From the beginning then, the physician must direct his efforts to relieving the general anxiety and in the process convert its various aspects, including the financial, into a reasonable understanding. He can never entirely succeed in placing their relationship on a completely objective and logical basis; indeed he should not attempt to, since his best success will be measured by his ability to mobilize the emotional factors in his favor, thus overriding the negative impact of the economic exchange upon both the patient and himself.

THE AVOIDANCE OF BLAME

With the new patient, the effort should be made to guide the relationship through the following phases: 1. The physician expresses immediate interest in the complaint, its cause, and history, giving assurance that he will take action against it as quickly as possible, but reminding the patient that for safety's sake he must learn the best methods to use for him as an individual. The emphasis on the best choice of action is essential to gain attention and get away from the hope for a "magic cure," while the stress on the person flatters the recipient that he is receiving attention from someone who considers him important and whom he should therefore like. 2. Advances in medical diagnosis and therapeutics then furnish examples further stressing the need for thoroughness and special attention to each person's problems, so that the patient will expect the physician to be equally thorough in treating him, will want him to perform whatever examination and tests are necessary, and will then freely divulge his previous medical history as an aid to that end. The patient's faith in tests and drugs as such must be converted into faith in the physician's judgment in interpreting and selecting them. His need for assurance that the physician is sympathetic is satisfied when he is encouraged to talk freely about his problems and himself. 3. The doctor can now outline the specific examination and diagnostic program for the patient with a good chance that it will be understood logically and accepted emotionally on a level of mutual trust rather than of fear. He can now and should tell the patient what the examination will cost and how it may be paid, as a means of alleviating the financial concern over the immediate service, and as a token that he will tell the patient beforehand what his future charges will be. Having brought the relationship from a potentially dangerous level of anxiety to a fairly rational basis, the physician flatters the patient as a practical person by introducing the economic aspect that earlier would have been embarrassing to both of them; in doing so he attacks the basis of resentment against the profession that "doctors are too high-and-mighty to talk about money but watch them grab for it!" Having established a principle at his initial meeting with the patient, the doctor will find himself obligated, and therefore it will be easier for him, to present in advance of its performance the fee for therapy and to make arrangements for the meeting of it.

While the above approach is directed primarily to the new patient who is seen not in intense pain, it can readily be applied to former patients or to new emergency patients as the acute phase diminishes. It is based on the need to demonstrate to the patient that the physician's first interest is in him as a person and on the recognition that their relationship begins as an emotional one. Reason and logic play but a small

part, unless a deliberate, well-planned, and sustained effort is made by the physician to guide both patient and himself from their first emotional reaction toward a reasoning understanding of the problem that they must solve together. While we cannot overlook the economic problem, we must recognize that no logical solution to it is possible while other aspects remain on the emotional level. Thus, when the physician accuses the nonpaying patient of ingratitude, he admits his failure in creating a sound logic-based relationship with that patient and admits that he has not been able to rise above the reactive level.

PLANNING THE COLLECTION PROGRAM

Returning to the practical aspects of collecting in the office, the first goal is to reduce the large backlog of outstanding accounts to the reasonable level of two to three months' charges. Here is often found the specious reasoning that a large amount of outstanding accounts is a safety factor and helps assure continuing income should the physician have to close the office for any length of time. We have already discovered, from a previous study, to what small extent such long-overdue accounts can be counted on in emergency or even when an active collection program is initiated in the continuing practice. As a practical rule of thumb, accounts with over six months' charges outstanding are only about 25% collectable, and those over a year old are essentially worthless.

To be effective, any program must be realistic. When an account carrying a large balance is known to be beyond the ability of the patient to pay, even in small installments, the old balance should be written off entirely or at least reduced to whatever amount the patient is capable of meeting. Cancellations should not be the result of guesswork or as part of a "general amnesty" but must each be discussed with the patient if possible to establish what is most fair. Whatever action is then taken must be accompanied by a clear understanding that future services will not be permitted to go unpaid to a like extent, the physician undertaking to present his reasonable charges as they are incurred and the patient to meet them at that time.

The so-called friends or similarly privileged patients who, we are frequently told, "are sure pay, when they get around to it," must be brought around to realize that their financial responsibilities are just as great as anyone's else. If this is not done, the physician will too often find that the money he has, in effect, loaned his friends will not be paid back, and the debt may even turn the friends into enemies.

The program must be moderate. We have seen that the sudden threat or brusque summons, after a long period of inactivity, may produce a violent reaction when the patient has become accustomed to an easy-going attitude. Therefore, initial contacts, whether in person or by letter, must be mild and friendly. When regular statements have produced no response, dunning notes on further statements are ineffective and are received as a gratuitous insult. Stickers attached to statements are even worse, particularly would-be humorous ones (why an overdue doctor's bill seems a subject for humor is something we have never been able to fathom). The "canned" printed credit reference type of form letter, with the patient's name obviously filled in later, is equally objectionable; all these collection methods are blatantly mechanical, routine, and commercial in their approach. While they may have some success in collecting money, they further break down any remaining vestiges of personal contact and friendly relationship between the office and the patient. Personal discussion in adequate privacy, at the office or by phone, is the most satisfactory contact method. Where such contact is not possible, individually prepared letters are the next best, with their major emphasis toward restoring that direct contact so that the payment problem may be worked out under the most favorable circumstances.

Only after a number of appeals have been ignored or promises of payment broken is the final threat to call in a collection agency justified; and this should be phrased "more in sorrow than in anger." When the final warning has been given without response, the account must be turned over for collection

action, or the success of the entire program is jeopardized. In numerous instances, we have seen every possible type of appeal ignored because this final step was not taken; when the doctors finally brought themselves to back up their threat with action, payments began to come in from patients who had imposed on them for years.

The selection of the proper collection agency is also of importance. The commercial agency customarily is geared to the type of approach in which final action is the repossession of merchandise and against accounts where retail credit rating is involved. Obviously, no medical services can be taken back for nonpayment; and we have observed that credit ratings seldom bear much relationship to financial delinquency in the doctor's office. The best choice of agency is the independent professional bureau which subscribes to the code of ethics of the National Association of Medical-Dental Bureaus, a leading organization of specialists in this field. Incidentally, while the national average of collections on medical accounts through general bureaus is around 30%, the better specialized bureaus report better than 50% and, for their clients who have set up good collection procedures within their own offices, one bureau reports 73% collections in a recent study. Once the collection agency has been selected on the basis of these criteria, it is essential that it be given adequate authority to take whatever action necessary. Strangely enough, this may often be the recommendation that the account be canceled entirely because of financial hardship.

The program must be persistent. All outstanding accounts must be reviewed each month as statements are prepared or at a convenient regularly scheduled time. Where two or three statements have brought no response or a promised payment has not been made, the account will be designated either for personal contact by the physician or secretary or for a letter suitable to the circumstances. Appropriately more severe contacts (usually by letter) will be prepared and sent to patients who have ignored the previous month's letter. Those who have ignored the final appeal or who have disappeared leaving no address will be listed with all available information for assignment to the collection bureau. There is a wide difference of opinion as to how many months of letters should be planned before the final action. In a well-established program, we favor a maximum of around six months where the account has not previously been delinquent. Where previous contact has not proved entirely effective or in a new program with a heavy backlog of long overdue accounts, an accelerated campaign may be necessary. No set rule can be stated, since each account must be considered individually and the action suited to the circumstances.

MANAGING THE COLLECTION PROGRAM

An effective program requires time and effort to plan and to maintain. The physician himself carries the greatest responsibility and in his attitude toward his financial relations with patients and the prevention of future delinquency lies the key to the correction of that already built up. Much of the burden of actually administering the program can, however, be taken from his shoulders by his staff or by management counsel serving as auxiliary staff. In fact, such an objective viewpoint and experience in preparing collection letters has been one of the most important advantages to the clients of such services whose role in collections must remain that of the doctor's anonymous secretary. However the program is administered, the cost and effort will pay good dividends to the practice. Better collections are the directly measurable result and certainly an important one. Better relations with patients will also result, and these may take the form of a healthy growth of the practice or of improving the general level of patient cooperation. These better relations will play an important part in avoiding the ill will that otherwise may lead to complaints before the society's grievance committee or to a malpractice suit. The continuing studies of grievance cases and court actions against physicians confirm that around 90% of them originate with unpaid bills, so, in this respect as well, it pays to do your own collecting.

622 Fourth and Pike Bldg. (1) (Mr. Porterfield).

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. J. Diseases Children, Chicago

86:705-844 (Dec.) 1953

- *Thymus Problem. J. T. Littleton, D. S. Mottay and S. P. Perry.—p. 705.
- Bromides in Treatment of Epilepsy in Children. S. Livingston and P. H. Pearson.—p. 717.
- *Postprandial Hypolipemia of Pancreatic Fibrocystic Disease: Diagnostic Test. E. F. Hirsch, L. Carbonaro, A. D. Biggs and F. L. Phillips.—p. 721.
- Psychogenic Vomiting in Children. P. C. Laybourne Jr.—p. 726.
- Functioning Adrenal Tumors in Childhood: Consideration of Diagnosis, Surgical Approach, and Postoperative Management. E. H. Sobel, C. M. Lee Jr., V. M. Esselborn and L. C. Clark Jr.—p. 733.
- Metabolism of Creatine and Guanidoacetic Acid in Premature and Full-Term Infants. S. Cohen, R. G. Frazier and H. H. Gordon.—p. 752.
- Agglutination Studies in Visceral Larva Migrants. F. X. Fellers.—p. 767.
- Risk of Death from Asphyxiation in Measles Encephalitis. P. Bendz and C.-G. Engström.—p. 772.
- Acute Dextroamphetamine Sulfate Poisoning: Report of Case in Child. T. F. Fletcher.—p. 777.
- Congenital Atresia of Biliary System: Delayed Development of Correctability. A. Kanof, E. J. Donovan and H. Berner.—p. 780.
- Chondrodysplasia (Achondroplasia) in One of Dizygotic Twins. R. K. Slungaard and L. E. Harris.—p. 788.
- Absent Abdominal Musculature, Genitourinary Anomalies, and Deficiency in Pelvic Autonomic Nervous System. W. L. Henley and A. Hyman.—p. 795.

Thymus Problem.—A review of the thymus problem was undertaken three years ago at the Guthrie Clinic and Robert Packer Hospital. Approximately 2,600 infants and children have been studied in an attempt to obtain answers to the following questions. What is the normal anatomy of the infant mediastinum when shown in roentgenograms? Can obstructive symptoms be caused by the thymus? How often is respiratory stridor due to tracheal compression by the thymus? When is radiation therapy indicated? The results obtained largely coincide with those of earlier studies in which little concrete evidence was found to support a connection between the thymus gland and symptoms of stridor, cough, and cyanosis or sudden death. Roentgenographic appearances formerly believed to represent abnormalities of the thymus are now known to be characteristic of the normal anatomy and physiology of the infant mediastinum. Tracheal compression has never been satisfactorily demonstrated by roentgenographic means, and efforts to detect it on fluoroscopic examination of normal infants during extremes of flexion and extension of the head failed to show sufficient narrowing of the trachea to produce respiratory embarrassment. Stridor and other symptoms supposedly due to an enlarged thymus may in reality be caused by congenital conditions or disorders such as atelectasis, tracheal or laryngeal stenosis, whooping cough, or meningitis. Hundreds of babies are undoubtedly receiving unnecessary radiation therapy because of widened mediastinal shadows. Children subject to repeated bouts of stridor, cough, and cyanosis, however, are benefited, often dramatically, by radiation therapy, probably because they have an underlying low grade, chronic, or recurrent tracheobronchitis that is favorably affected by the treatment.

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Titles marked with an asterisk (*) are abstracted.

Postprandial Hypolipemia of Pancreatic Fibrocystic Disease.—Pediatricians need to distinguish between fibrocystic disease or fibrosis of the pancreas and other disorders of nutrition clinically diagnosed as celiac disease. The symptoms of patients with fibrocystic disease are comparable to those observed in dogs after ligation of the pancreatic duct and can be ascribed to the absence of the external secretion of the pancreas. Fat foods are not tolerated, and the deficiency of pancreatic enzymatic activity results in a marked lack of fat absorption from the bowel. Studies of the esterified fatty acid content of the blood during the postprandial hyperlipemia of normal adults and of diabetics suggested that it could be used as a measure of pancreatic function in children in whom fibrocystic disease was either present or suspected. The esterified fatty acids of the blood at the so-called fasting level in normal children aged 8 weeks to 7 months were found to range between 7.2 and 13.8 mEq. per liter. The postprandial increase following a test meal of 36% cream in an amount calculated to give 4 gm. of fat per kilogram of body weight ranged to as much as 31.7 mEq. per liter. Children with fibrocystic disease, in whom pancreatic function is markedly decreased, show only a slight rise or none at all in the esterified fatty acid content of the blood after a similar test meal. Estimation of the esterified fatty acids at the fasting and the four and six hour postprandial levels in children given this test meal by mouth therefore constitutes a convenient laboratory method of evaluating pancreatic function.

A.M.A. Arch. Dermat. and Syphilol., Chicago

68:481-618 (Nov.) 1953

- Contributions to Study of Pemphigus. J. G. Brennan.—p. 481.
- Psychosomatic Dermatology Circa 1850. S. D. Allison.—p. 499.
- Primary Pustular Gonorrhea of Skin. J. L. Byers and D. F. Bradley.—p. 503.
- Personality Factors in Adult Atopic Eczema. J. T. McLaughlin, R. J. Shoemaker and W. B. Guy.—p. 506.
- Heredity of Multiple Benign Cystic Epithelioma "The Indiana Family." L. E. Gaul.—p. 517.
- Treatment of Eczema with Cortisone Ointment. H. Vollmer.—p. 525.
- Influence of Local Factors on Cutaneous Injury and Healing. F. B. Benjamin and T. Cornbleet.—p. 530.
- *Isoniazid (Nydrazid) in Treatment of Cutaneous Diseases: Cutaneous Tuberculosis, Leprosy, Sarcoidosis, and Miscellaneous Dermatoses. F. E. Cormia, M. J. Costello, L. P. Barker and others.—p. 536.
- Influence of Pressure on Nodules of Xanthoma Tuberousum. T. Butterworth.—p. 545.
- Influence of X-Ray Cones on Dose. S. Epstein, J. M. Wickham and W. Epstein.—p. 549.
- Low Incidence of Dermographism in Subacute and Chronic Urticaria. A. A. Fisher and S. Schwartz.—p. 553.
- Isoniazid Therapy of Chronic Dermatoses. L. C. Goldberg and C. R. Simon.—p. 556.
- Laboratory Test for Evaluation of Fungicidal Solutions. R. E. Lyons and C. S. Livingston.—p. 566.

Isoniazid in Skin Diseases.—Isoniazid (Nydrazid) was given to 9 patients with tuberculosis of the skin, to 15 with tuberculid, to 8 with leprosy, to 4 with sarcoid, and to 14 with miscellaneous conditions. The drug had a decidedly beneficial effect in all nine cases of lupus vulgaris and scrofuloderma. The response of tuberculid to therapy was poor in 11 cases, excellent in 3, and satisfactory in 1. In three cases of lepromatous and one of indeterminate leprosy, the disease responded satisfactorily after three to four months of continuous therapy. There was no response to isoniazid in three cases of tuberculoid leprosy. The drug was not of benefit in four cases of sarcoid, three of dermatitis herpetiformis (Dühring's disease), 7 of chronic discoid, and one of chronic disseminated lupus erythematosus. Doses of 0.2 to 0.6 gm. daily were well tolerated. Reactions were somewhat troublesome when daily doses of 0.8 to 1.2 gm. were given, but there was not a single severe toxic reaction. There was no definite evidence that daily doses of 0.8 to 1.2 gm. of isoniazid were superior to the smaller doses.

A.M.A. Arch. Ind. Hyg. & Occupat. Med., Chicago

8:493-600 (Dec.) 1953

- *Acute Inhalation Toxicity of Beryllium: IV. Beryllium Fluoride at Exposure Concentrations of 1 and 10 Milligrams per Cubic Meter. H. E. Stokinger, C. J. Siegel, R. E. Root and others.—p. 493.
- Systematic Toxicological Analysis by Spectrophotometric Methods: I. Nonalkaloidal Organic Compounds. G. W. Roche and H. N. Wright.—p. 507.
- Id.: II. Alkaloidal Poisons. E. Berman and H. N. Wright.—p. 518.
- Pharmacological Studies of Radiogermanium (Ge^{76}): II. Inhalation of Dusts. H. C. Dudley.—p. 528.
- Note on Mica Dust Inhalation. H. Heimann, S. Moskowitz, C. R. H. Iyer and others.—p. 531.
- Connecticut Program for Safe Aerial Application of Pesticides. J. Lieben.—p. 533.
- Vinyl Plastics: Their Dermatological and Chemical Aspects. G. E. Morris.—p. 535.
- Synthetic Rubbers: Their Chemistry and Dermatological Aspects. G. E. Morris.—p. 540.
- Neuroses and Compensation: Chronic Psychiatric Disorders Following Injury or Stress in Compensable Situations: I. Review of Literature. A. D. Pokorny and F. J. Moore.—p. 547.
- Toxicity of Silica: I. Silica Solutions. L. D. Scheel, E. Fleisher and F. W. Klempner.—p. 564.
- Fluctuations of Breath Radon in Subjects Seated at Rest. E. J. Martin and J. K. W. Ferguson.—p. 574.
- Serious Poisoning by Hexachlorocyclohexane: Clinical and Laboratory Observations on Five Cases. E. Danopoulos, K. Melissinos and G. Katsas.—p. 582.

Inhalation Toxicity of Beryllium.—Acute beryllium poisoning by inhalation was studied in a variety of animal species exposed to beryllium fluoride mist in a closed chamber. Two experiments were performed; in the first, exploratory in nature and of relatively short duration, 6 dogs, 6 cats, 20 guinea pigs, 20 female albino mice, 10 male rabbits, and 40 albino rats were exposed daily to concentrations of 10 mg. of beryllium fluoride per cubic meter. In the second and definite experiment, 14 dogs, 5 cats, 10 male rabbits, and 120 male albino rats were exposed daily to concentrations of 1 mg. of beryllium fluoride per cubic meter. In all species, lesions attributable to the effects of inhaled beryllium fluoride were confined to the lungs. These pulmonary lesions resembled closely the lung changes resulting from inhalation of beryllium sulfate. Beryllium fluoride is acutely more toxic than beryllium sulfate. Exposure to 1 mg. per cubic meter of beryllium fluoride (190 mcg. of beryllium per cubic meter) resulted in lung damage in cats, dogs, rabbits, and rats roughly comparable in extent and degree to that produced by 10 mg. of beryllium sulfate hexahydrate per cubic meter (420 mcg. of beryllium per cubic meter). The severest and most extensive lesions occurred in the lungs of dogs, while the changes were minimal in rats and intermediate in cats and rabbits. Hematological changes suggestive of the progressive development of macrocytic anemia occurred in dogs and rabbits during exposure to 1 mg. of beryllium fluoride per cubic meter. The anemia was severer than that observed after inhalation of beryllium oxide dust or beryllium sulfate mist. Daily administration of a dietary supplement of a proprietary liver-stomach concentrate with iron and vitamin B complex (Lextron) failed to prevent the development of anemia in dogs, and vitamin B₁₂ alone in the dose regimen employed (9 to 12 mcg. in three and four doses at 48 and 72 hour intervals) proved of little prophylactic or therapeutic value. A feature of the anemia developing during exposure to beryllium fluoride was a decrease in the proportion of mature polymorphonuclear leukocytes in the circulating blood and a concomitant increase of immature forms. Urinary uric acid excretion appeared to hold promise as an index of the degree of exposure to beryllium. Beryllium tended to accumulate in the lungs, pulmonary lymph nodes, liver, skeleton, and bone marrow of dogs. The rate of deposition in the lungs and the pulmonary lymph nodes increased with the duration of exposure. The data obtained by spectrophotographic analysis of tissues for beryllium suggest that there are specific differences in the rate and possibly also in the manner in which inhaled beryllium fluoride is mobilized from the primary site of deposition in the lungs and distributed to other tissues or excreted in the urine and feces in cats, dogs, rabbits, and rats. In relation to the quantity of beryllium in the lungs, a considerably greater portion was distributed

to the skeleton, liver, spleen, and kidneys of dogs after inhalation of beryllium fluoride than was observed in previous studies of the insoluble beryllium oxide or the soluble and readily dissociated beryllium sulfate mist.

A.M.A. Arch. Otolaryngology, Chicago

58:521-644 (Nov.) 1953

- Selected Problems in Diagnosis of Laryngeal Carcinoma. S. A. Friedberg and L. J. Wallner.—p. 521.
- Acute Iodism Following Use of Chloriodized Oil (Iodochlorol) in Bronchography: Report of Case. M. Asch.—p. 536.
- *The Allergic Load. J. R. Anderson and W. Rubin.—p. 540.
- Warlike Experience with Skull Injury and Blast and Their Effect upon Ear. J. C. Drooker.—p. 546.
- Evaluation of Deafness of Nonorganic Origin. M. F. Heller and P. Lindenberg.—p. 575.
- Recruitment Testing in Hearing and Its Implications. J. L. Bangs and C. J. Mullins.—p. 582.
- Changing Concepts in Otolaryngology. L. J. Lawson.—p. 593.
- Vaccination for Chronic Sinusitis and Chronic Nasal Catarrh. H. M. Kinghorn, G. E. Wilson and M. Dworski.—p. 598.
- Diagnostic Cutaneous Reactions, Specific Prevention and Treatment in Epidemic Respiratory Infections. E. C. Rosenow.—p. 609.
- Otitis Media and Complications. B. R. Dysart.—p. 623.

The Allergic Load.—Increasing numbers of otolaryngologists have incorporated into their practices the treatment of allergic diseases of the ears, nose, and throat, but some have become dissatisfied with their results. One important reason for this was a failure to consider the patient as a whole. Another major cause may be that, in their preoccupation with the antigen-antibody relationship, they failed to consider other factors that may greatly influence the allergic reaction. The authors are concerned with the concept of the allergic load, which may be defined as the sum total of the contributory or exciting factors that play a part in the production or modification of allergic symptoms. The contributory factors do not produce an allergic attack themselves, but affect the person in such a way as to precipitate or aggravate allergic reactions. The specific, or exciting, factors are the antigens or allergens. The allergic load may be increased as a result of either massive exposure to a single antigen or simultaneous exposure to a number of substances, most allergic persons being sensitive to more than one substance. The authors comment on therapeutic measures that are directed toward reducing the load, such as making the dust-sensitive person's home dust-free. They also discuss subclinical allergy, which means a state of sensitivity to one or more substances that do not produce symptoms except under certain conditions of massive exposure or concomitant exposure with other allergens or when the symptom threshold is lowered by some contributory factor. Common conditions which the authors have found to increase the allergic load are smoking, anemia, hypercholesterolemia, sex hormone influences, particularly in women (menstruation and menopause); hypothyroidism, and psychosomatic influences.

Alabama State Medical Assn. Journal, Montgomery

23:119-142 (Nov.) 1953

- Recent Trends in Congestive Heart Failure and Methods of Treatment. F. B. Schultz.—p. 119.
- Recent Advances in Surgery of Obliterative Arterial Diseases. W. S. Edwards.—p. 125.
- Cardiac Arrest During Surgery. L. C. Harris Jr. and W. H. Block.—p. 128.

American J. Digestive Diseases, Fort Wayne, Ind.

20:331-368 (Nov.) 1953

- Public Health Aspects of New Insecticides. M. S. Biskind.—p. 331.
- Graduated Clinical Pre-Detection of Digestive Tumors: Initial Results of First Systematic Detection Center. G. Albot, M. Parturier-Albot, N. Bernard and others.—p. 341.
- Gastrojejunostomy (New Approach to an Old Operative Procedure). I. H. Einsel.—p. 348.
- Clinical Studies in Blood Lipid Metabolism: VIII. Disturbed Serum Lipid Partitions in Liver Diseases With and Without Jaundice. A. A. Goldbloom, H. B. Eiber and L. J. Boyd.—p. 354.

American Journal of Hygiene, Baltimore

58:269-392 (Nov.) 1953

- Poliomyelitis in Hidalgo County, Texas, 1948: Epidemiologic Observations. R. S. Paffenbarger Jr. and J. Watt.—p. 269.
- Id.: Poliomyelitis and Coxsackie Viruses from Flies. J. L. Melnick and R. P. Dow.—p. 288.
- Id.: Poliomyelitis and Coxsackie Viruses in Privy Specimens. T. Francis Jr., G. C. Brown and J. D. Ainslie.—p. 310.
- Cytochemical Differentiation of Endamoeba Histolytica and Endamoeba Coli by Means of Fluorescent Antibody. M. Goldman.—p. 319.
- Further Studies of Toxoplasmosis in Birds. H. P. Drobeck, R. D. Manwell, E. Bernstein and R. D. Dillon.—p. 329.
- Use of "Components of Variance" Technique in Biological Experimentation. R. L. Stearman, T. G. Ward and R. A. Webster.—p. 340.
- Cultivation of Free-Living Stages of Hookworms in Absence of Living Bacteria. P. P. Weinstein.—p. 352.
- Mouse Neutralization Test for Lansing Poliomyelitis Antibody Employing Small Amount of Whole Blood. U. P. Kokko, D. H. Hollander and T. B. Turner.—p. 377.
- Q Fever Studies; Presence of Coxiella Burnetii in Birth Fluids of Naturally Infected Sheep. F. R. Abinanti, E. H. Lennette, J. F. Winn and H. H. Welsh.—p. 385.

American Journal of Psychiatry, New York

110:321-400 (Nov.) 1953. Partial Index

- Faith and Delusion in Psychotherapy: Ur-Defenses of Man. J. H. Masserman.—p. 324.
- Quantification of Severity of Overt Psychotic Symptoms. D. W. Goodrich.—p. 334.
- Function of "Administrative Group" in Mental Hospital Group Therapy Program. B. A. Cruvant.—p. 342.
- Psychotic Depressive Reactions in Soldiers Who Accidentally Killed Their Buddies. A. T. Beck and S. Valin.—p. 347.
- Immediate Fatal Coronary Thrombosis Following Electric Convulsive Therapy. G. C. Sisler and J. C. Wilt.—p. 354.
- Electrical Activity of Brain in Case of Atabrine Psychosis. L. Halpern, M. Streifer and L. Laszlo.—p. 366.
- Feeling of Superiority: Occupational Hazard in Practice of Psychotherapy. J. Marmor.—p. 370.

American Journal of Surgery, New York

86:489-642 (Nov.) 1953. Partial Index

- Origin and Management of Cancer of Colon and Rectum. F. H. Lahey.—p. 489.
- Primary Abdominal Wound Healing in Surgery Involving Colon. J. A. Ferguson.—p. 494.
- Classification and Treatment of Children with Severe Chronic Constipation. O. Swenson.—p. 497.
- Genetic Factor of Familial Disseminated Polyposis Coli. R. T. McCarty.—p. 500.
- Transition Period in Proctology. L. E. Moon.—p. 505.
- Roentgenologic Examination of Bleeding Bowel. W. M. Kitchen.—p. 511.
- Traumatic Perforations of Rectum and Distal Colon. R. R. Klein and R. A. Scarborough.—p. 515.
- *Collective Review of Cancer of Colon and Rectum in General Hospital. G. L. Kratzer.—p. 523.
- Analysis of Causes of Morbidity and Mortality in Colonic Surgery. A. J. McAdams.—p. 530.
- Villous Tumors of Rectum Below Peritoneal Reflection. J. E. Ryan.—p. 535.
- Villous Tumors of Rectum and Sigmoid Colon Above Peritoneal Reflection. M. A. Lucas.—p. 539.
- Surgery of Diverticulitis of Colon. A. W. Allen.—p. 545.
- Present Status of Treatment of Pilonidal Sinus Disease. N. W. Swinton and R. K. Markee.—p. 562.
- Significance of Ureteral Studies in Colonic and Rectal Surgery. H. E. Bacon, E. J. Lowell Jr. and H. D. Trimpi.—p. 572.
- Polyps of Rectum and Colon in Children. J. W. Harris.—p. 577.
- Thiersch's Operation for Anal Incontinence and Minor Degrees of Rectal Prolapse. W. B. Gabriel.—p. 583.
- Investigation into Effects of Altered Acid-Base Equilibrium upon Motility of Colon. P. M. Recio and M. J. Oppenheimer.—p. 591.
- Surgical Treatment of Proctoditis of Rectum: An Evaluation of Combined Abdominal and Perineal Repair. J. E. Dunphy, T. W. Botsford and E. Savlov.—p. 605.

Cancer of Colon and Rectum in a General Hospital.—Of the 171,171 cancer deaths that occurred in the United States in 1941, 29,000 were caused by cancer of the bowel. In an effort to clarify some of the problems presented by this type of cancer, Kratzer reviewed the 197 cases of cancer of the colon and rectum observed at the Allentown General Hospital during the three year period from 1947 to 1949 inclusive. Surgical treatment was employed in 165 of these patients; that is, the operability rate was 83.7%. Of the 165 patients operated on, 40 had exploration only or a simple palliative procedure and 125 had resection. Of the patients in whom resection was performed, 58 were subjected to the Miles' one stage re-

section, 27 to a multiple stage procedure, 36 to resection with primary anastomosis, and 4 to the pull-through type of operation. Evidence of spread beyond the bowel wall was noted in 42 patients. There were 10 operative deaths. Five were attributed to cardiac disease, two to pulmonary embolism, one each to peritonitis, postoperative shock, and phlebitis. Thirty-two patients survived over four years. This survival rate of 28% is discouraging. It is believed to be due to delay on the part of the patient in seeking advice. The cases of the patients undergoing extirpation of the rectum in 1947 were reviewed in an effort to determine the five year survival rate. Six of these 18 are alive today. The patients operated on in 1948 had a four year survival rate of 43%. It is probable that this increase in survival rate will continue from year to year. A modification of the two stage abdominoperineal resection as performed on one of the services for certain cancers situated in the lower portion of the rectum at the Allentown Hospital is described.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

37:501-618 (Nov.) 1953

- *Study of Etiology, Epidemiology, and Therapeutics of Nongonococcal Urethritis. S. S. Ambrose Jr. and W. W. Taylor.—p. 501.
- Studies on Comparative Behavior of Various Serologic Tests for Syphilis: III. Report on Return to Seronegativity Following Successfully Treated Primary and Secondary Syphilis (with Remarks on Serologic Response of Chronic Biologic False Positive Reactors Subsequently Infected with Syphilis). J. C. Cutler, B. J. Chester and E. V. Price.—p. 514.
- Preliminary Observations of Action of Penicillin on Treponema Pallidum in Vivo. H. E. Morton and W. T. Ford.—p. 529.
- Mazzini Cardiolipin Microflocculation Test in Serology of Syphilis. H. N. Bossak, A. Harris, W. P. Duncan and others.—p. 536.
- *Some Observations on Treatment of Interstitial Keratitis with Penicillin, Malaria, and Cortone. A. Oksala.—p. 540.
- Decline and Fall of Syphilis in New York State. L. de Mello and R. L. Vought.—p. 545.
- Latent Syphilis Inguorée and Syphilis Control During Epidemic in Denmark, 1942 to 1949: Statistical Analysis of Newly Diagnosed Untreated Cases. I. B. Svendsen.—p. 553.
- Veneral Disease Education, United States Navy. W. S. Anderson.—p. 574.
- Gonorrhea Repeater Demonstration Project: Preliminary Report from Philadelphia. J. W. Lentz, H. E. Morton, M. Garrison Jr. and P. R. Leberman.—p. 577.

Nongonococcal Urethritis.—Forty-five Navy men with a urethral discharge in which the gonococcus could not be found by smear or culture were thoroughly studied concerning the etiology and epidemiology of their urethritis. For each patient admitted to the Navy hospital for study and treatment, a hospital corpsman with a history not including recent febrile illness or any genitourinary tract disease was selected for study as a paired control. The history obtained from the 45 patients revealed a characteristic story of mild, lower urinary tract inflammation with only minor variations in degree. All of the patients had had intercourse within a period of 55 days of the onset of urethritis. The average period of time between intercourse and the onset of urethritis was 15.2 days, and urethritis developed within 10 days of exposure in 25 patients. The cytological picture of the urethral discharge was that of two distinct exudates. One consisted primarily of polymorphonuclear leukocytes associated with rare eosinophils and epithelial cells. The other type was primarily made up of epithelial elements. The cytological picture of the prostatic secretion was one of predominant leukocytes with rare cuboidal epithelial cells, small lymphocytes, plasma cells, macrophages, and eosinophils. The flora of the lower genitourinary tract was varied in character and abundant. Gram-negative bacilli, corynebacteria, gram-positive bacilli, gram-positive cocci and fungi were cultivated from the urethra, urine, or prostate in all patients before and after therapy with oxytetracycline (Terramycin). (Neisseria were isolated in only two patients and were proved not to be Neisseria gonorrhoeae.) With this therapy the urethral discharge, containing predominantly morphonuclear leukocytes in 35 patients, changed strikingly to an epithelial exudate. All 41 patients treated with oxytetracycline noted a rapid decrease in amount and change in character of the discharge. The irritative symptoms promptly disappeared and so did the pyuria. Thirty-seven patients were free of urethral discharge within seven days after the institution of therapy. Transient recurrences of mucoid discharge occurred

20 times in 14 patients after their release from the hospital. All recurrences were epithelioid in character. The species of bacteria present in the control group were quantitatively and qualitatively similar to those of the patients. The impressions gained from this study are as follows: nongonococcal urethritis is a disease of sexually active persons, but it was not proved to be venereal in origin and should not be so classified. The clinical picture is one of a mild inflammatory disease of the lower genitourinary system and is not confined to the anterior urethra. "Abacterial" urethral exudates do not exist. A specific causative agent was not found, and further investigation must include that of the existing flora of the urethra and its accessory apparatus. Known forms of the gonococcus play no causative role in this disease. The associated prostatic inflammation is probably the most important component of this syndrome. Oxytetracycline is the most effective form of therapy available.

Treatment of Interstitial Keratitis.—Of 35 patients with interstitial keratitis resulting from congenital syphilis, 10 were treated with penicillin alone, 14 with penicillin combined with fever therapy, and 11 with penicillin, fever therapy, and topical cortisone (Cortone). Results showed that there is no drug with a specific effect on interstitial keratitis. Penicillin failed to affect the course of the disease in any way. Fever therapy had some influence on both subjective and objective symptoms of interstitial keratitis. The ultimate place of cortisone and corticotropin in the treatment of interstitial keratitis is still undetermined. Although hormone therapy frequently results in a rapid and pronounced change in the course of the disease, this change is, as a rule, of a transient nature. Possibly the hormones, in so far as they bring about a most lasting improvement in the early phase of the disease, cause a return to the previous condition, and the predisposition of the cornea to the disease remains equally high.

Cancer, Philadelphia

6:1065-1266 (Nov.) 1953. Partial Index

- Tumors of Major Salivary Glands. F. W. Foote Jr. and E. L. Frazell. —p. 1065.
- Granular-Cell Myoblastoma of Hypophyseal Stalk. W. A. Harland. —p. 1134.
- Carcinoma of Thyroid in Childhood and Adolescence. S. Warren, M. Alvizouri and B. P. Colcock. —p. 1139.
- Pulmonary Fibrosis and Terminal Bronchiolar ("Alveolar-Cell") Carcinoma in Scleroderma. J. Zatuchni, W. N. Campbell and C. J. D. Zarafonitis. —p. 1147.
- Carcinoma of Esophagus Developing at Site of Lye Stricture. N. H. Bigelow. —p. 1159.
- *Carcinoma of Stomach: Review of 161 Cases Treated at New Haven Hospital from January, 1941, to December, 1946, and Comparison with Two Previous Series 1920-1930 and 1931-1940. P. Safar and E. E. Clifton. —p. 1165.
- Application of Balloon Technique in Detection of Cancer. D. L. S. Chapman, C. T. Klopp and L. I. Platt. —p. 1174.
- New Rapid Method for Stomach-Cancer Diagnosis: Gastric Brush. J. E. Ayre and B. G. Oren. —p. 1177.
- Malignant Fibrous Mesothelioma of Peritoneum. R. P. Hill. —p. 1182.
- Breast Self-Examination. E. M. Cohart, J. K. Hill and A. L. Barlow. —p. 1186.
- Lymphangiosarcoma in Postmastectomy Lymphedema. M. F. Hilfinger Jr. and R. D. Eberle. —p. 1192.
- *Study of in Situ and Squamous-Cell Cancer of Uterine Cervix. J. W. Reagan and D. J. Hicks. —p. 1200.
- Cutaneous Melanoma: Ulceration as Prognostic Sign. V. N. Tompkins. —p. 1215.
- Changes in Blood Chemistry Associated with Carcinoma Metastatic to Bone. H. Q. Woodard. —p. 1219.
- Aneurysmal Bone Cyst: Further Observations. L. Lichtenstein. —p. 1228.
- Lymph-Node Concentration of Radioactive Colloidal Gold Following Interstitial Injection. A. I. Sherman and M. Ter-Pogossian. —p. 1238.
- Resistance of White-Footed Field Mouse (*Peromyscus leucopus noveboracensis*) to Carcinogenic Action of Urethane. L. Gross, E. C. Gluckman, B. B. Kershaw and A. E. Posselt. —p. 1241.

Carcinoma of Stomach.—The results of treatment of 158 patients with carcinoma of the stomach admitted to a general hospital, the New Haven Hospital, for definitive treatment in the years 1941 to 1946 were compared with the results in two previous periods, 1920 to 1930 and 1931 to 1940. There has been a significant increase in the ratio of five year survivals to total admissions in each series. This increase is undoubtedly due to an extension of indication for gastric resection and an increase of the number of resections at the expense of palliative

procedures such as gastrostomy and gastroenterostomy with a simultaneous decrease in mortality. At the present time, there are 17 patients living more than five years without evidence of recurrence of the total of 486 (3.5%) diagnosed between 1920 and 1946. Eight of these have survived more than 10 years. This is not a negligible number of long survivors and deserves consideration by those who call this a hopeless lesion. Unfortunately there has been no significant decrease in the ratio of inoperable lesions in patients admitted and no significant change in delay before referral of patients for definitive treatment. The greatest hope for a really satisfactory cure rate of carcinoma of the stomach would seem to be an adequate screening test for cancer. Earlier diagnosis by an increase in the index of suspicion by physicians and patients is the only apparent means at present available. Extension of surgery as by more radical or total gastrectomy possibly will give some further improvement if the surgical mortality rate can be decreased at the same time and adequate methods of replacement therapy are developed.

Cancer of Uterine Cervix.—Carcinoma in situ means cancer in its normal or original location. The lesion has been defined as "a condition in which malignant epithelial cells and their progeny are found in or near positions occupied by their ancestors before the ancestors underwent malignant transformation." Such changes may exist in any site in which cancer arises and, in the female genital tract, have been observed in the uterine tube, endometrium, vulva, vagina, and uterine cervix. This study was made to acquire a detailed knowledge of in situ cancer so that comparison with squamous cell cancer would be possible and additional evidence suggesting relationship might be obtained. During a five year period histopathological examinations were made on 5,044 cervixes, including 126 amputated cervixes, 2,543 complete uteri, and 2,375 cervical biopsies. The latter included sharp or cold knife conizations, wedge resections, and multiple punch biopsies. Of the 5,044 patients represented, 3,643 were white, 1,395 were Negro, and 6 were members of the yellow race. The mean age at the time of examination was 45.4 years in the white and 37.2 years in the nonwhite group. Carcinoma in situ was found in 100 of the 5,044 cervixes (about 2%). During the same five year period, 225 cases of squamous cell carcinoma were observed. In comparing these two groups of patients, it was found that in both in situ and squamous cell cancer: (1) the average age at detection was less in the Negro than in the white patient; (2) the occurrence was more frequent in the Negro than in the white woman; (3) the lesions were less common in Jewish women than in those of other religions; (4) a relatively high proportion of the patients were parous; (5) the component cells were identical; and (6) the anatomic distribution was similar. In some 10,000 women subjected to cellular examinations, the prevalence of in situ cancer was 41 cases as compared with an expected prevalence of 34 to 43 cases under the assumed conditions. The criteria used in recognizing in situ cancer are described, and the differentiation from atypical hyperplasia and squamous cell cancer is considered.

Fertility and Sterility, Philadelphia

4:439-542 (Nov.-Dec.) 1953. Partial Index

- Mechanical Aspects of Surgical Correction of Male Sterility. V. J. O'Connor. —p. 439.
- Psychodynamic Approach to Study of Infertility. E. S. C. Ford, I. Forman, J. R. Willson and others. —p. 456.
- Observations on Origin and Specific Function of Histiocytes in Female Genital Tract. G. N. Papanicolaou. —p. 472.
- *Follicular Fluid: Its Possible Role in Human Fertility and Infertility. R. Kurzrok, L. Wilson and C. Birnberg. —p. 479.
- Ovulation After Ectopic Pregnancy: Incidence as Determined by Endometrial Biopsy. A. M. Siegler. —p. 495.
- Accuracy of Endometrial Dating: Correlation of Endometrial Dating with Basal Body Temperature and Menses. R. W. Noyes and J. O. Haman. —p. 504.
- Preadolescent Hypogonadism and Infertility: Histologic Study of Maldevelopment. C. W. Charny, A. S. Conston and D. S. Meranze. —p. 518.

Role of Follicular Fluid in Fertility.—According to Kurzrok and associates, data are meager concerning the progress of spermatozoa in the human female genital tract toward the ovum and the progress of the ovum from the ovary into and

through the tube toward the spermatozoa. They feel that human follicular fluid plays a greater role in fertilization than has been supposed, and they review considerations that tend to indicate this, such as that fertilization is limited by a time factor, that spermatozoa behave somewhat like cilia, and that the differing diameters of the various parts of the fallopian tubes influence the energy imparted to the follicular fluid. Experiments are described that show that human follicular fluid serves as a nutrient medium for human spermatozoa. Spermatozoa survive longer in follicular fluid than in seminal plasma. Similarly, the intensity of motility is supported. The nature of the substance in follicular fluid producing this effect is still unknown. It is hoped that further studies of human follicular fluid will yield additional information that will be helpful in the therapy of infertility. The authors suggest the theory that follicular fluid is involved in the progress of ovum and spermatozoa toward one another within the female genital tract and that fertilization occurs within this fluid. Follicular fluid flows from the peritoneal cavity through the tubes and out through the tubal ostium into the uterus where it is channeled toward the cervix. Spermatozoa move only in a fluid medium, hence pass into the tubes by swimming in these fluid channels from the cervical canal toward and through the tubal ostium. The passage of spermatozoa into the tubes is, therefore, a directed phenomenon and not a fortuitous occurrence. The clinical significance of these findings is discussed.

Gastroenterology, Baltimore

25:321-470 (Nov.) 1953

- Motor Mechanism of Esophagus, Particularly of Its Distal Portion. G. C. Sanchez, P. Kramer and F. J. Ingelfinger.—p. 321.
- Disturbance of Esophageal Motility in Cardiospasm: Studies on Autonomic Stimulation and Autonomic Blockade of Human Esophagus, Including Cardia. M. H. Sleisenger, H. Steinberg and T. P. Almy.—p. 333.
- Surgical Management of Achalasia of Esophagus. H. R. Hawthorne and P. Nemir Jr.—p. 349.
- Insufficiency of Cardia in Hiatus Hernia. C. A. Flood, J. Wells and D. Baker.—p. 364.
- Note on Innervation of Cervical Portion of Human Esophagus. K. Hwang and M. I. Grossman.—p. 375.
- *Incidence and Diagnosis of Esophageal Varices in Cirrhosis of Liver: An Esophagoscopic Study. I. B. Brick and E. D. Palmer.—p. 378.
- Achalasia of Cardia with Esophageal Carcinoma. J. F. Crenshaw and R. J. Booher.—p. 385.
- Pseudodiverticulum of Esophagus Associated with Cardiospasm. R. J. Priest and C. R. Lam.—p. 393.
- *Spontaneous Rupture of Esophagus. M. E. Grigsby, R. K. Brown and S. Cave.—p. 398.
- Further Observations on Postoperative Gastritis: Histopathologic Aspects, with Note on Jejunitis. E. D. Palmer.—p. 405.
- *Clinical Evaluation of New Anticholinergic Drug, Pro-Banthine. I. R. Schwartz, E. Lehman, R. Ostrove and J. M. Seibel.—p. 416.

Esophageal Varices in Cirrhosis of the Liver.—Of 150 patients with microscopically confirmed cirrhosis in whom esophagoscopy was done as a routine procedure, 59 had a history of hemorrhage and 91 did not. Varices of the esophagus were diagnosed in 95 (63.3%), 47 of whom had a history of hemorrhage, while 48 (52.7%) did not. A fairly high incidence of varices thus occurred in cirrhotic patients who had no history of hemorrhages. No untoward effects of the endoscopy were observed in the 150 patients. In addition x-ray studies with specific instruction to the radiologist to search for esophageal varices were done in 147 patients, in 92 (62.5%) of whom varices of the esophagus had been demonstrated esophagoscopically. In 19 (12.9% of the 147 and 20.6% of the 92) the roentgen diagnosis was positive for esophageal varices, and 15 of these 19 patients had a history of bleeding. The comparative diagnostic value of x-ray study in this series thus indicated that only 21% of the cases of varices present were diagnosed by that method. Esophagoscopy enabled diagnosis of a larger number of cases of esophageal varices than could have been afforded by any other method. In view of the high incidence of esophageal varices in patients with cirrhosis, even without a history of bleeding, routine esophagoscopy, which had been shown to be a safe procedure, should be done in every patient with cirrhosis.

Spontaneous Rupture of the Esophagus.—The occurrence of spontaneous rupture of the esophagus is reported in a 51-year-old woman who complained of weakness, dyspnea, generalized abdominal discomfort, and retrosternal pain of six to eight hours' duration after an episode of violent retching and hematemesis. A shock-like condition developed, and a left hydropneumothorax was observed on physical examination. Aspiration of the left pleural cavity yielded 1,200 cc. of sanguinopurulent fluid that on Gram staining revealed many gram-positive and gram-negative cocci and bacilli, some of which had the morphological appearance of clostridia. The patient vomited once after admission; the vomitus consisted of 200 cc. of dark green fluid with a fecal odor. She denied dysphagia and drank as much as 250 cc. of water without distress. Her temperature rose to 103 F (39.5 C), and respirations and pulse were rapid. Rupture of the esophagus was considered but not seriously entertained until about one hour before her death because of absence of symptoms referable to the esophagus, normal esophageal function tests, and continued vomiting. Death occurred in the 19th hospital hour during the course of a diagnostic work-up. Necropsy revealed a longitudinal tear measuring 2 cm. in the left lateral wall of the esophagus through which a probe could be passed through the adjacent mediastinal tissue into the left pleural cavity. It is imperative to consider spontaneous rupture of the esophagus in patients with severe epigastric or precordial pain that occurs during violent vomiting or retching. Pneumothorax and subcutaneous emphysema may be observed frequently on physical examination. Although the diagnosis is established only by demonstration of a communication between the esophagus and pleural cavity, strong confirmation is obtained when hydrochloric acid, vegetable material, and/or clostridia are found in the pleural aspirant. Extensive perforation may be present without dysphagia.

New Anticholinergic Drug, Pro-Banthine.—A new isopropyl analogue of methantheline, propantheline (Pro-Banthine) bromide, was given a therapeutic trial in 156 patients with various gastrointestinal disorders. The most striking effect of this new anticholinergic agent was the relief of pain in peptic ulcer and the inhibition of motility in patients with diarrhea, especially of the functional type. In this regard it mimics the action of methantheline (Banthine). The relief of pain, when achieved, was prompt and usually complete. Most patients were relieved of pain within 48 to 72 hours after doses of 30 to 45 mg. of the drug four times daily were instituted. Of the 156 patients, 129 had active peptic ulcer, and 106 of these were completely relieved of pain, 12 were significantly relieved, and 11 were considered failures because they could not tolerate the drug or were not relieved of their symptoms. Clinical impression, supported by roentgen studies, was that there is definite acceleration of healing of the ulcer crater while under treatment with propantheline. Patients with severe manifestations should receive 30 to 45 mg. of the drug every six hours. After two or more weeks, a maintenance dose of 15 mg. four times daily may be used. Initial dosage of 15 mg. four times daily may be given to patients with less severe manifestations. Recurrences of ulcer symptoms while on maintenance dosage were relieved by raising the dose to therapeutic levels. Six patients with functional diarrhea were either completely or significantly relieved of their symptoms. Propantheline proved useful in the control of postoperative regional ileitis and the symptoms of the dumping syndrome. It was of less value in treating ulcerative colitis. The usual side-effects noted with methantheline were also observed with propantheline but to a much lesser degree. The previously unreported side-effects of urinary frequency and headache were noted, although these were rarely sufficiently severe to require discontinuation of the drug.

Hawaii Medical Journal, Honolulu

13:91-160 (Nov.-Dec.) 1953

- Comparative Study of Mortality from Gastric Cancer in Hawaii. T. R. Rhea.—p. 107.
- Primary Carcinoma of Liver: Statistical Review of 12 Cases Seen at Queen's Hospital, 1947 to 1952. J. G. Marnie.—p. 113.
- Limitations of Mental Hygiene. E. A. Stephens.—p. 115.
- "Platelet Thromboses" Involving Gastrointestinal Tract: Report of Case. H. Civin and H. C. Gotshalk.—p. 119.

Industrial Medicine and Surgery, Chicago

22:507-546 (Nov.) 1953

- Beryllium Oxide Poisoning. J. Lieben and A. J. Jackson.—p. 507.
 Objective Appraisal of Periodic Health Examinations. R. C. Page.—p. 510.
 *Trauma and Cardiac Complications. R. J. Lajoie.—p. 514.
 An Aid to Accident Prevention: Medical Profile Classification of Bus Operators. H. Brandaleone and G. J. Friedman.—p. 520.
 Peripheral Vascular Disorders Caused by Industrial Occupations. H. M. Cuneo.—p. 525.
 Technical Witness: Preparation for Court Appearance—The Attorney's Viewpoint. T. D. Wade.—p. 529.
 Lead and Lead Poisoning in Early America: Lead Mines and Lead Poisoning. C. P. McCord.—p. 534.

Trauma and Cardiac Complications.—Lajoie points out that there remain two schools of thought on trauma as a cause of cardiac complications. One believes that "the heart lying against the sternum is vulnerable to compression forces applied to the chest." This is especially true in children in whom the chest cage is easily compressed. The other school claims that "the heart is a compact, spindle mass of continuously moving muscle that lies in a soft, yielding bed, is well protected by bones, and cannot be reached by a crushing violence, unless the force is exceptionally severe." Judging from recent medical literature, it seems that the first school of thought is the more popular. Two of the most important nonpenetrating injuries of the heart are discussed and illustrated by case histories. The first is injury to the muscle or contusion of the heart, which occurs in what is referred to as the steering wheel injury. Electrocardiographic studies should be made whenever there is a history of injury to the chest particularly in automobile accidents. The second nonpenetrating injury of the heart is acute coronary occlusion with myocardial infarction that occurs in the course of employment. In this connection the author cites the case of a truck driver, aged 41. While he was rolling lumber off a truck and using a crowbar to pry the rollers, the bar slipped from his hand and he struck his chest against the roller. He immediately experienced pain across his chest, and his breath was shut off for a few seconds. He rested for a few minutes, but when he resumed his work the pain in his chest was severe. He perspired profusely and had difficulty in breathing. On the fourth day the pain became so severe that he consulted a physician who examined him and told him that he had had a heart attack. This was confirmed by electrocardiographic findings. The author observed this patient for more than a year and found a gradual electrocardiographic improvement, the tracings returning almost to normal, which is unusual in a person of his age group. He has now changed his opinion and concluded that the man had had contusion of the heart. The claim was accepted by the insurance carrier and compensation was paid. In dealing with an industrial cardiac problem, a detailed history should be obtained, and the report should be thoroughly studied before a final opinion is given. A claim is likely to be denied in the absence of stress, strain, or overexertion or when several hours or days elapse between the accident and the symptoms. When the worker is aware of symptoms during, or immediately after, unusual stress or strain, acceptance of a causal relationship between occupation and disability is justified.

Journal of Applied Physiology, Washington, D. C.

6:263-316 (Nov.) 1953

- Oral Administration of Co⁹⁰ Vitamin B₁₂ to Normal Persons, Patients with Pernicious Anemia, and Subjects with Various Medical Disorders. L. M. Meyer, A. Becerra-Garcia, A. Goldman and P. A. Stern.—p. 263.
 Sleep Characteristics of Infants. N. Kleitman and T. G. Engelmann.—p. 269.
 Effect of Non-Twenty-Four-Hour Routines of Living on Oral Temperature and Heart Rate. N. Kleitman and E. Kleitman.—p. 283.
 Discrepancies in Cardiac Output Measurements by Two Applications of Direct Fick Principle. G. G. Nahas, M. B. Visscher and F. J. Haddy.—p. 292.
 Method of Estimating Respiratory Cost of Task by Use of Minute-Volume Determinations. J. Draper, R. G. Edwards and R. H. Hardy.—p. 297.
 *Human Electrocardiogram During and After Inhalation of 30% Carbon Dioxide. F. M. MacDonald and E. Simonson.—p. 304.

Electrocardiographic Studies During and After Inhalation of 30% Carbon Dioxide.—The use of 30% carbon dioxide inhalation for treatment of a series of psychiatric patients gave MacDonald and Simonson an opportunity to study the resulting

electrocardiographic changes. The studies were made on 17 men who were psychiatric patients, who ranged in age from 25 to 48 years, and who had no history or signs of cardiac disease or hypertension. Chest roentgenograms and electrocardiograms were normal before treatment. A total of 27 treatments were studied electrocardiographically. Some disturbance of auricular or ventricular activity appeared in 12 of the 17 patients. Auricular changes were found in 11 patients; ventricular extrasystoles appeared in 5 patients, including one patient who exhibited a brief period of ventricular bigeminy. The P-wave changes found included low voltage and inversion. The following abnormalities of rhythm were noted: auricular and nodal premature beats, auricular tachycardia, supraventricular tachycardia, and an irregular supraventricular pattern of probable auricular ectopic origin. Increased T-wave voltage was seen during carbon dioxide inhalation in nine instances. The authors feel that, while the changes they observed are by no means alarming in themselves, their nature suggests that serious disturbances, supraventricular or ventricular, could occur. Their patients were relatively young, selected for the absence of evidence of heart disease; nevertheless, 12 of the 17 patients showed some abnormality. The possibility that heart disease, particularly latent coronary insufficiency, could contribute to the development of more serious disturbances is clear. Electrocardiographic observations are recommended during each treatment with 30% carbon dioxide in order to insure maximum safety.

Journal of International College of Surgeons, Chicago

20:531-666 (Nov.) 1953. Partial Index

- Achalasia of Cricopharyngeal Sphincter. N. Asherson.—p. 531.
 Cancer and Heredity. K. Blond.—p. 544.
 Terminal Ileum Duplex. D. U. McGregor.—p. 551.
 Traumatic Neck, Head, Eye Syndrome. H. E. Billig Jr.—p. 558.
 Osteochondroma of Tendon Sheath. K. A. Hill and A. E. Lubchenco.—p. 562.
 Conservative Treatment of Tumors of Bladder. W. A. Milner.—p. 566.
 Effect of Surgical Stress on Blood Levels of Calcium and Phosphorus. M. A. Manzanilla, F. Fonseca, M. A. Manzanilla Jr. and R. S. Crespo.—p. 573.
 Needle Decompression and Temporary Cecostomy for Severe Colon Obstruction. W. L. Wolfson and M. W. Greenberg.—p. 579.
 Surgical Uses of Viable Intestinal Segments. J. M. Hammer, P. H. Seay, E. J. Hill and F. Prust.—p. 586.
 *Chronic Ulcerative Colitis: Complications: Results of Treatment. M. S. Kleckner.—p. 592.
 Treatment of Comminuted Colles' Fracture. E. O. Geckeler.—p. 596.
 Oscillating Sign as an Aid to Differential Diagnosis of Acute Abdominal Disease. M. C. Ratzan.—p. 602.
 Incidental Urogenital Pathologic Conditions Associated with Traumatic Urogenital Emergencies. G. Schinagel.—p. 608.
 Sphenoid Sinus from Surgical Standpoint. G. L. Whelan.—p. 612.
 Blood Levels of Potassium and Sodium During and After Operations. M. A. Manzanilla, M. A. Manzanilla Jr. and R. S. Mazal.—p. 617.
 Silent Lesions of Abdomen. C. S. White.—p. 623.
 Thyroidectomy: Indications and Pitfalls. W. M. Skipp.—p. 628.

Complications of Chronic Ulcerative Colitis.—Kleckner discusses the complications of chronic ulcerative colitis on the basis of observations on 425 cases. They should be treated promptly after careful study to determine whether they originate in the colon itself or from other systemic disturbances. Polyps, strictures, perforations, hemorrhages, and abscesses with fistulous formations and malignant change are the complications most frequently encountered. Other systemic disorders, such as cardiorenal changes, nutritional deficiencies, and arthritis, may occur in conjunction with chronic ulcerative colitis. They may develop independently of the colonic lesions or occur as a result of the general toxemia or lowered resistance associated with chronic ulcerative colitis. A very important factor in many cases is the lack of proper psychosomatic approach. The author regards it as unfortunate that patients are being told that "a colitis" (or oftener, "a spastic colitis") is present, although the only symptom is slight tenesmus or the passage of variable amounts of mucus in the stools. Rarely is proper proctologic study given. Complications occur in the infected areas mainly because of delay in treatment. The author further comments on some of the complications of chronic ulcerative colitis, particularly on the incidence of carcinoma in these patients. In his own series the incidence of carcinoma was 4%, but he is of the opinion that this is too low a percentage

to be accurate, because he was unable to follow up many of the patients for a sufficient length of time. Had he been able to follow all the patients carefully, he is convinced that malignant disease would be revealed in over 10%. He feels that 25 to 30% of patients with chronic ulcerative colitis require more than medical treatment, and that only ileostomy or colectomy will produce cure.

Journal of Neurophysiology, Springfield, Ill.

16:567-666 (Nov.) 1953

- Exteroceptive and Proprioceptive Ascending Impulses in Pyramidal Tract of Cat. A. Brodal and B. R. Kaada.—p. 567.
Effects of Lesions on Subcortically Evoked Movement in Cat. C. D. Hendley and R. Hodes.—p. 587.
Properties of Chemoreceptors of Tongue of Rat. L. M. Beidler.—p. 595.
Spread of Evoked Cortical Potentials. W. A. Mickle and H. W. Ades.—p. 608.
Functional Characteristics of Afferent Fibers from Tooth Pulp of Cat. J. M. Brookhart, W. K. Livingston and F. P. Haugen.—p. 634.
Behavioral Changes Following Rhinencephalic Injury in Cat. L. Schreiner and A. Kling.—p. 643.

Laboratory Investigation, Philadelphia

2:397-472 (Nov.-Dec.) 1953. Partial Index

- Technics for Study of Normal and Atherosclerotic Arterial Intima from Its Endothelial Surface. E. V. Lautsch, G. C. McMillan and G. L. Duff.—p. 397.
Intranuclear Changes Resulting from Exposure to Ionizing Radiation, as Detected in Frozen-Dried Preparations. M. W. Holt, S. C. Sommers and S. Warren.—p. 408.
Rapid Serial Section Technic. W. V. Lovitt Jr., M. Talbot and A. J. Fisk.—p. 419.
Relation of Pituitary and Adrenal Glands to Nephrotic Syndrome in Rats. W. Heymann, D. B. Hackel, C. Gilkey and M. Salehar.—p. 423.
Simplified Method for Staining Cancer Cells, Vaginal Secretions, and Biopsy Specimens of Various Organs: Further Observations. Shu Chu Shen, W. Y. Goon and F. Homburger.—p. 429.
Comparison of Microradiographic and Histologic Patterns in Bone. J. Cohen and P. Lacroix.—p. 447.
Duplication of Mitral Valve. H. E. Bowman and F. F. Forry.—p. 454.

Laryngoscope, St. Louis

63:873-1024 (Oct.) 1953

- Rhinology in Children: Resumé of Literature for 1952. D. E. S. Wishart, J. B. Whaley and W. B. Wallace.—p. 873.
Management of Congenital Ear Canal Atresia. H. P. House.—p. 916.
Anatomical and Physiological Correlations on Stimulating Human Superior Laryngeal Nerve. J. H. Ogura and R. L. Lam.—p. 947.
*Evaluation of Hearing Loss in Drop Forge Workers. M. S. Fox.—p. 960.
Mixed Tumors of Soft Palate and Parotid Gland: Case Report. W. W. Wilkerson Jr.—p. 972.
Tuberculosis of Larynx and Its Treatment with Streptomycin and Hydrazine Derivatives of Isonicotinic Acid. R. R. Lehmann.—p. 977.
Speech Audiometry Testing for Pre-School Children. A. J. Sortini and C. G. Flake.—p. 991.

Hearing Loss in Drop Forge Workers.—During the years 1950 to 1952 Fox examined 64 drop forge workers who had filed claims for alleged loss of hearing resulting from their work. Otologic, audiometric, and ear, nose, and throat studies were made. Medical consultation was requested when indicated. One worker was malingering, and another had psychogenic deafness. The hearing losses in the other 62 workers were proportional to the length of employment. The ability to hear conversational voice, on the average, followed the audiometrically determined hearing losses. The diagnosis of industrial hearing loss was based on the record of employment in areas of intense noise, the medical history, and objective findings. Intense noise levels were present in the forge plants. There were no records pertaining to preemployment hearing, despite the fact that most of the employees had been given routine preemployment physical examinations. Therefore, it became necessary to rely on the applicants for the history pertaining to past hearing impairment or ear disease. Records from school or military service were obtained in a few instances. The extent of hearing impairment claimed by the workers varied considerably. Some had trouble only with high frequency sounds like the ring of the telephone and doorbell or the ticking of their watches. Others complained of being able to hear, but not clearly; while some had great difficulty in hearing any speech. The hearing of each worker was examined several times,

but this study cannot tell the complete story of this type of hearing loss. There is need for basic investigations in the forge plants. The hearing status of the worker will have to be studied at the time he begins employment, and it should be checked periodically. Functional relationships between the exposure factors and hearing loss will have to be determined as well as the effectiveness of methods used to reduce noise intensity. The medicolegal problems that confront the otologist indicate that the scientific bodies now investigating the various aspects of industrial hearing loss will have to revise and modify presently used formulas and methods of evaluating functional hearing.

Military Surgeon, Washington, D. C.

113:355-442 (Nov.) 1953

- Infective Hepatitis and Homologous Serum Jaundice, Major Source of Disability Among Military Personnel. J. F. Harris.—p. 355.
*Backache: Observations on Diagnosis and Management of 122 Soldiers with This Symptom as Their Chief Complaint. P. R. Dodge and E. A. Cleve.—p. 376.
Maxillofacial Injuries in the Field. T. F. McManis.—p. 390.
Talc Pneumoconiosis. H. A. Lyons.—p. 393.
Fluorenes as Carcinogens. J. R. Sampey.—p. 396.
Standardization Helps Speed Medical Build-up of NATO Command. H. F. Schlosser.—p. 398.
Parasitic Diseases Among Veterans at Halloran Hospital 1947-1951. B. H. Kean.—p. 399.
Combined Pulmonary and Central Nervous System Cryptococcosis: Case Report. D. L. Galindo and S. W. Bohls.—p. 403.
Bilateral Perilunar Dislocation of Carpus. S. J. Curran and J. W. Phipps.—p. 414.

Backache in Soldiers.—During the Korean war a large number of patients with the chief complaint of backache came from military units actively engaged in combat or from installations directly in support of these units. It soon became apparent that objective evidence of significant medical, orthopedic, or neurological disease was lacking in a large percentage of them. The symptoms and signs exhibited by many suggested that the backache was a symptom of psychiatric disease. The clinical records of 122 patients, representing consecutive cases, were reviewed, and each of these patients was seen by one or both of the authors. Although most of these patients were referred by physicians to Tokyo Army Hospital with the diagnosis of some form of local disease of the back, only 38.5% had significant, objective evidence of local back disease. In the 54.2% of the soldiers who had no objective evidence of local disease of the back, examination, history, and course of disease suggested that backache was a symptom of a neurosis—either hysteria or anxiety neurosis. A special group of 49 patients, which included some of the 122, were classified psychiatrically—69.4% of these patients were considered to have hysteria and 30.6% anxiety neurosis. The largest majority (83%) of the men with significant, objective evidence of local disease of the back were accounted for by the diagnosis of herniated nucleus pulposus, rheumatoid spondylitis, and acute back injury or strain. When no significant, objective evidence of local disease of the back was found, the patients were told just this. They were treated with reassurance and suggestion and were told that they must return to duty since no medical disability existed. Seventy-nine per cent of these were returned to duty.

Missouri Medicine, St. Louis

50:819-896 (Nov.) 1953

- Chest Injuries: Diagnosis and Treatment. R. A. Dorner.—p. 835.
Pediatric Emergencies. S. S. Gellis.—p. 837.
Responsibilities of Medical School to State It Serves. W. C. Wescoe.—p. 841.
Treatment of Congestive Heart Failure. T. R. Jones.—p. 844.
Application of Radioisotopes to Clinical Practice. H. Statland, S. Rubin and L. Walker.—p. 848.

50:897-976 (Dec.) 1953

- Differential Diagnosis of Peripheral Edema. J. H. Hill.—p. 915.
Abdominal Trauma. G. B. Starkloff, D. Bailey and R. Rutledge.—p. 918.
Importance of Anesthesia Technics in Poor Risk Patient. C. H. White.—p. 922.
Adenomatous Polyps of Large Bowel. L. J. LeBlanc and G. L. Krause.—p. 925.

New England Journal of Medicine, Boston

249:791-828 (Nov. 12) 1953

- *Resection of Anginal Pathway for Relief of Anginal Pain. J. A. Evans and J. L. Poppen.—p. 791.
 *Fever as Sign of Quinidine Toxicity: Report of Sensitivity in Two Brothers with Thyroid Disease. H. B. Sprague and W. A. Tansey.—p. 796.
 Ethics of Psychosurgery. W. Freeman.—p. 798.
 Spontaneous Extravasation from Ureter Secondary to Aneurysm of Abdominal Aorta. W. A. Schloss and B. J. Kaplan.—p. 802.
 Food Poisoning (Continued). K. F. Meyer.—p. 804.

Resection of Anginal Pathway for Relief of Anginal Pain.—

High thoracolumbar sympathectomy was performed in 16 patients with anginal pain, 14 of whom were hypertensive and 2 normotensive. The follow-up period for the series was from six months to three years. The anginal pathway is composed of sympathetic fibers passing through the inferior cervical fused with the first thoracic ganglion (stellate ganglion) and direct fibers from the cardiac plexus passing through the first, second, third, and fourth thoracic ganglia. The best results were obtained in patients who had complete resection of the anginal pathway bilaterally, but less extensive resection also proved satisfactory in many patients. The reduced danger accompanying limited resection makes it advisable for patients whose anginal syndrome is mild. Relief of pain was complete in five patients, complete except for a residual sense of throat constriction in four, and satisfactory in four. Residual throat or jaw pain was not a constant finding, and warning throat pain, when it occurred, appeared at a greatly increased exercise-tolerance level. The operation sometimes produces a Horner syndrome, but this need not be taken as a contraindication because the disadvantage it represents is far outweighed by the relief obtained and in addition the ptosis may become less pronounced in time. Resection of the anginal pathway should be confined to patients with severe angina associated with hypertension; normotensive patients with an "over-alarm" syndrome who have not recently suffered a coronary infarction may also be benefited, but the results in such patients will always be less satisfactory than those in patients with hypertension.

Fever as Sign of Quinidine Toxicity.—Two brothers with auricular fibrillation and thyroid hyperfunction were treated with quinidine, and in each drug sensitivity took the form of fever with temperatures of 104 and 105 F respectively. The only other toxic reaction was a mild diarrhea. The sensitization by previous doses, the discrepancy between the height of the fever and the patient's well-being, and the rapid decline in the temperature in from 24 to 48 hours after discontinuance of the drug, which have been mentioned by others as criteria for the diagnosis of fever due to quinidine, were all present in these patients. Each had a cryptic type of hyperthyroidism, and in each there was a relatively slow ventricular rate associated with auricular fibrillation of the coarse flutter type. Fibrillation persists in one patient who has been treated with propylthiouracil, procaine amide (Pronestyl) hydrochloride, and digitalis medication; in the other, who was also treated by surgical removal of cystic thyroid tissue, each of these drugs has proved effective in restoring the rhythm to normal (on three separate occasions). A sudden rise in the temperature of a patient with auricular fibrillation suggests embolism or bacterial endocarditis; when such a rise occurs in a patient receiving quinidine, use of the drug should be stopped before these diagnoses are considered, unless other overt signs of arterial obstruction or blood stream infection are present.

Ohio State Medical Journal, Columbus

49:957-1060 (Nov.) 1953

- Diabetes Mellitus in the Aged. J. I. Goodman and L. B. Goldberg.—p. 981.
 Diabetes Mellitus and Obesity. T. P. Sharkey.—p. 986.
 Arteriosclerosis and Heredity in the Diabetic. O. P. Allen.—p. 991.
 Dietetic Management of Diabetes. H. J. John.—p. 994.
 "Sore Throat?" Diphtheria. C. A. Wilzbach.—p. 998.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

84:1-258 (Oct.) 1953, Partial Index

- Renal Response to Hypercapnia. E. G. Dowds, E. W. Brickner and E. E. Selkurt.—p. 15.
 Ultrafiltrability of Plasma Urate in Man. T. F. Yu and A. B. Gutman.—p. 21.
 Metabolic Interrelationship Between Folic Acid, Vitamin B₁₂, and Citrovorum Factor. V. M. Doctor, B. E. Welch, R. W. Perrett and others.—p. 29.
 Plasma Radioactive Iron Turnover in Acute Viral Hepatitis. R. E. Peterson.—p. 47.
 Transfusion of Separated Leukocytes into Irradiated Dogs with Aplastic Marrows. G. Brecher, K. M. Wilbur and E. P. Cronkite.—p. 54.
 Virus Growth and Cellular Energy Production: Effect of Substances Chemically Related to Thyroxin on Influenza Virus. M. D. Eaton, L. T. Adler and M. E. Perry.—p. 57.
 Failure of Choline Therapy to Alter Serum Lipids in Patients with Coronary Artery Disease. S. U. Greenberg and M. Bruger.—p. 87.
 Failure of Short-Term Administration of Thyrotrophic Hormone to Produce Exophthalmos in Man. B. Simkin and P. Starr.—p. 99.
 Concentration of Ascorbic in Human Adrenal Cortex Before and After ACTH Administration. F. J. Agate Jr., P. B. Hudson and M. Podberczec.—p. 109.
 Peripheral Blood Concentrations of Steroids in Man After Oral Administration of 17-Hydroxycorticosterone. J. B. Richards and M. L. Sweat.—p. 125.
 Botulinum Toxin and Motor End Plate. J. H. Stover Jr., M. Fingerma and R. H. Forester.—p. 146.
 Relation of Thyroid Status to Nitrogen Excretion Following Exposure to Thermal Radiation. A. W. Wase, H. J. Eichel and E. Kepplinger.—p. 152.
 Leptospiral Antigen Demonstrated by Fluorescent Antibody Technic in Human Muscle Lesions of Leptospirosis Icterohemorrhagiae. W. H. Sheldon.—p. 165.
 Effect of Glycerol and Freezing on Some Staining Reactions of Human Spermatozoa. J. K. Sherman and R. G. Bunge.—p. 179.
 Mixed Infections with Cocksackie and Lansing Poliomylitis Viruses in Mice. S. E. Sulkln, C. Wallis and T. P. Murphy Jr.—p. 184.
 *Comparative Protective Effect of Cysteine Against Fast Neutron and Gamma Irradiation in Mice. H. M. Patt, J. W. Clark and H. H. Vogel Jr.—p. 189.
 *Effect of Heat on Agent of Homologous Serum Hepatitis. R. Murray and W. C. L. Diefenbach.—p. 230.
 *Induction of Pituitary Tumors by Means of Ionizing Irradiation. A. C. Upton and J. Furth.—p. 255.

Protective Effect of Cysteine Against Irradiation.—Control and experimental animals (mice) were irradiated simultaneously, caged together in groups of 10 to 15, and otherwise handled similarly. Cysteine was administered as a 12.5% solution of the hydrochloride neutralized to pH 7 with 10 N sodium hydroxide. Only freshly prepared solutions were employed. The cysteine dose was 1,200 mg. per kilogram of body weight and was given intravenously. Control mice were injected with an equivalent volume of 5% sodium chloride. In general, cysteine was injected between 5 and 15 minutes before exposure. The exposure time varied from 80 to 90 minutes for gamma rays and 60 to 90 minutes for neutrons. Pretreatment with cysteine was found to confer significant protection against the acute lethal effects of gamma Cobalt 60 (Co⁶⁰) and fast neutron (fission) irradiation in mice. The protection observed with fast neutrons is, however, about half of that found with gamma irradiation.

Effect of Heat on Agent of Homologous Serum Hepatitis.—The etiological agents of serum hepatitis and of infectious hepatitis are unusually resistant to chemical and physical methods of inactivation. The occurrence of numerous cases of homologous serum hepatitis following inoculation of certain lots of yellow fever vaccine to which human serum had been added demonstrated that the agent of homologous serum hepatitis can survive heating at 56 C for 30 to 60 minutes. The present study was part of an extensive program concerned with the safety of blood and blood products with respect to viral hepatitis. Material from a single large pool of infected plasma, referred to as infected pool plasma, was used in all the studies on the safety of plasma and its derivatives. It was found that samples of plasma known to contain the agent of homologous serum hepatitis retained their ability to produce hepatitis even after being heated at 60 C for 4 hours.

Induction of Pituitary Tumors by Ionizing Irradiation.—Large numbers of mice were exposed to atomic detonation. Some were not shielded and received predominantly gamma rays of high energy; some were shielded with lead to eliminate most of the gamma rays. The latter group is spoken of as neutron-exposed

animals. The mice remained in individual cages until natural death or were killed in extremis. Necropsy studies were done on all animals. A table recording the results indicates that 4 to 12% of the females exposed to from 192 to 733 r developed pituitary tumors as compared to 0.3% of the controls. No pituitary tumor occurred among the control males, while 2 to 5% of the males exposed to from 491 to 785 r developed such tumors. The dose acutely fatal to 50% of the animals was about 750 r. Pituitary tumors began to appear in larger numbers 16 months after irradiation, and they occurred with greatest frequency in the 23 to 25 months' postirradiation groups. In neutron-exposed mice it seemed that a dose as low as 40 to 70 rem may induce pituitary tumors. These findings, representing only a part of a large scale experiment, indicate that ionizing irradiation can produce pituitary tumors in at least one strain of mice. The authors emphasize that the tumors were induced in mice by a single exposure to ionizing irradiation, that they were about four times more frequent among females than among males, and that neutrons appear more efficient in inducing these neoplasms than gamma rays.

Psychiatric Quarterly, Albany, N. Y.

27:165-336 (Supp. [Pt. 2]) 1953. Partial Index

- *Mongolism. M. Lazar.—p. 197.
- Method of Rating Certain Personality Factors as Determined by Rorschach Test for Use in Study of Precursors of Hypertension and Coronary Artery Disease. J. M. Bruce Jr. and C. B. Thomas.—p. 207.
- Socio-Psychiatric Observations on Displaced Persons. H. E. Lehmann.—p. 245.
- Environment, Responsible as well as Reconstructive Factor in Mental Disorder. J. Mechlow.—p. 257.
- Problems of Administrative Psychotherapy in Mental Hospitals. M. L. Adland.—p. 264.
- Socio-Economic Trauma. S. Schryver.—p. 272.

Mongolism.—Lazar reconsiders some of the factors that have been mentioned in the literature as etiological factors in mongolism. Studies were made on 129 Mongoloid males and 80 Mongoloid females admitted to the Willowbrook State School of New York State during the three year period from 1948 to 1951. Nothing was found to substantiate the claims that order of birth, age of parents, previous health of the mother, number of abortions, religion, or economic status had any effect on the birth of Mongoloid infants. The presence of the more typical signs of mongolism is confirmed by examination. The Rh factor does not appear to be of significance. An attempt to stimulate the pituitary gland by means of x-ray radiation was unsuccessful. The Mongoloid brain is abnormal at birth, and it would seem improbable that treatment of the pituitary after birth would cause any marked change in the complex pattern of the brain. In the young age group of state school admissions studied, approximately 25% were Mongoloid; this indicates that Mongolian idiocy constitutes an important problem in the care and treatment of mental retardation.

Quart. Bull. Sea View Hospital, Staten Island, N. Y.

14:97-142 (July) 1953

- *Effect of Sodium Depletion on Cardiac Silhouette in Essential Hypertension and Asthma. G. G. Ornstein and L. Lercher.—p. 97.
- Anesthesia Techniques for Excisional Pulmonary Surgery; Experiences with Iproniazid. H. E. Susbac and M. B. Genauer.—p. 110.
- Thoracoscopy and Biopsy in Diagnosis of Pleurisy with Effusion. M. S. Lloyd.—p. 128.
- Modern Chemotherapy of Genito-Urinary Tuberculosis. M. E. Greenberger, M. Turell and M. Klein.—p. 134.

Effect of Sodium Depletion on Size of Heart.—The area of the cardiac silhouette is often reduced by a rice diet of low sodium content. This observation, first made by Kempner, has interested many investigators. Ornstein and Lercher report observations on seven patients in whom the relation between the size of the heart and the sodium intake are well documented. The first five of these patients had been placed on a sodium depletion diet because of hypertension. It was demonstrated that reduction of sodium intake reduces the size of the cardiac shadow in patients with essential and malignant hypertension. When the sodium intake was augmented, the cardiac shadow again showed a relative increase in size. In a patient, who had

periodic attacks of asthma, it was noted that his blood pressure rose during such episodes. When he was put on a low sodium diet, his asthma disappeared and his weight decreased. The authors noted this change frequently. They cite histories of two patients with asthma; these demonstrate that in cardiac asthma sodium depletion reduces the cardiac silhouette in the roentgenogram and favorably affects the asthmatic state.

South Carolina Medical Assn. Journal, Florence

49:281-304 (Nov.) 1953

- *Brain Abscess in Small Infants: Report of 3 Cases. G. D. Johnson, S. E. Elmore Jr. and F. F. Adams Jr.—p. 281.
- Pathogenesis of Hypochromic Anemia. C. deSaussure.—p. 283.
- Socialized Medicine in Great Britain. U. R. Bryner.—p. 285.

Brain Abscess in Small Infants.—Johnson and associates present the histories of three young infants all of whom succumbed to brain abscess. The ages of the infants were 12 days, 22 days, and 2½ months. One of the cases occurred in 1948 and two in 1950. Two of the infants apparently acquired the infection before or at birth; their mothers had severe respiratory infections. The third child was rehospitalized when about 2½ months old with purpuric spots over her whole body. The results of necropsy indicate thrombocytopenic purpura that had caused a series of hemorrhages of the brain. It is suggested that whenever a mother has even a slight respiratory infection at the time of delivery, the infant should receive either chemotherapy or antibiotic therapy to prevent, if possible, the occurrence of brain abscess. The number of brain abscesses in infants under one year reported in the literature is small. The authors briefly cite some earlier reports and say that all infants, except one, died.

Southern Medical Journal, Birmingham, Ala.

46:1043-1146 (Nov.) 1953. Partial Index

- Rehabilitation Following Cerebrovascular Accident. H. A. Rusk and M. Marks.—p. 1043.
- Role of Isonicotinic Acid Derivatives in Treatment of Tuberculosis. D. E. Jenkins.—p. 1052.
- Prevention and Treatment of Degenerative Complications of Diabetes Mellitus. C. W. Styron.—p. 1057.
- Prolonged Drug Therapy in Peptic Ulcer: I. Evaluation of Banthine® as Adjunct to Conventional Ulcer Therapy. E. C. Texter Jr., C. W. Legerton Jr., J. M. Ruffin and others.—p. 1062.
- Urinary Disturbances of Genital Origin in Women. L. F. R. Molina.—p. 1069.
- Experiences with Retropubic Prostatectomy. S. J. Pearlman.—p. 1073.
- Postoperative Effects of Cortisone upon Rabbit Eyes Treated by Cyclo-diathermy and Cycloelectrolysis. L. B. Sheppard.—p. 1078.
- *Bilateral Mastectomy for Breast Cancer. G. B. Sanders and D. W. Griffin.—p. 1083.
- Surgical Repair of Denuded Penis and Scrotum. A. L. Finkle.—p. 1092.
- Subacute Disseminated Lupus Erythematosus in Negro Male: Report of Case. W. Lindau.—p. 1099.
- Meliorheostosis Léri: Report of Case and Brief Review of Literature. R. D. Shapiro, W. H. Bernstein and T. M. Berman.—p. 1102.
- Echinococcus Disease. C. Williams Jr.—p. 1104.
- Early Diagnosis of Carcinoma of Colon: Particularly in the Mississippi Valley. H. G. Rudner.—p. 1108.
- Anaphylactic Shock Following Penicillin Injection. C. G. Pryor and Z. L. Burrell.—p. 1121.
- Use of Dextro-Amphetamine in Severe Behavior Problems of Children. S. A. Ginn and L. B. Hohman.—p. 1124.
- Studies on Vascular Headache: 1000 Cases of Migraine and Tension Headache. A. P. Friedman and T. J. C. von Storch.—p. 1127.
- Development of Myasthenia Gravis in Case of Multiple Neurofibromatosis. W. H. Waugh.—p. 1132.
- *Treatment of Perennial Rhinitis. J. H. Putman.—p. 1134.

Bilateral Mastectomy for Breast Cancer.—Sanders and Griffin point out that the treatment of breast cancer judged by the 5 and 10 year survivals is unsatisfactory. Since breast cancer has come to be regarded as a systemic disease, showing both a hereditary predilection and marked endocrine susceptibility of a bilateral paired organ system, it is being realized that the same group of factors responsible for the development of cancer in one breast may well continue to act to produce, after a varying period of time, cancer in the contralateral breast as well. The incidence of bilateral breast cancer is estimated by some authors at around 10%. The authors recommend for unilateral cancer a technique of bilateral mastectomy that embodies a simple but complete mastectomy on

the contralateral side and a radical Halsted-Haagensen mastectomy on the involved side. Since skin grafting will always be necessary to complete the closure, thick split skin grafts are first cut from the thigh and an occlusive pressure dressing is applied to the donor site before beginning the mastectomy, in order to avoid inadvertent transplantation of cancer cells. The grafts are stored in sterile saline packs until needed. The skin incisions are then outlined on the chest in ink, employing a transverse Stewart incision on the noncancerous breast, which merges with a Haagensen-type incision outlined about the involved breast. Skin flaps are then cut very thin and very widely beginning on the lateral aspect of the noncancerous breast, and resecting the innocent breast as completely and anatomically as possible, progressing from the lateral chest wall medially, in other words, in a cancerwards direction, but pausing at a safe distance (one handbreadth) from the cancer margin in the involved breast before proceeding farther. The simple mastectomy is thus completed, except for medial detachment from the chest wall, before skin flaps are cut on the cancerous side. The further steps of the operation are described and illustrated, and several case histories are presented. The authors feel that the fear that the operation will prove too formidable for the average patient is unfounded. The patients are allowed out of bed and are usually ambulatory by the second postoperative day. The dressings are removed on the seventh postoperative day at which time sutures and drains are also removed. Simple dressings usually suffice from then on. The authors found that unilateral mastectomy patients often expressed the wish that the opposite breast had been removed at the original operation; and many, on being queried, admit that they find the remaining breast a nuisance. Regarding the preference of some surgeons to do the operation in two stages, the authors feel that this is a violation of the principles of cancer surgery of resection in continuity.

Perennial Rhinitis.—According to Putman perennial rhinitis is one of the most important upper respiratory disturbances, but many patients with mild forms never consult a physician. It is a forerunner in about 50% of the cases of asthma. Many of these patients will not seek medical aid until they wheeze or have sinus trouble or nasal obstructions from polyps. Brief attacks of nasal itching, sneezing, and runny or stuffy nose are the most frequent symptoms; they may last for from a few minutes to several hours. Some patients feel as though they have a cold most of the time. Inhalants such as insect sprays, paints, varnishes, oils, perfumes, occupational dusts and odors, fumes, and smokes will aggravate or incite attacks of rhinitis. Ingestants oftenest responsible are cereals, nuts, chocolate, fish, fruits, milk, eggs, spices, and vegetables. Coffee, tea, alcohol, beer, and soft drinks are sometimes exciting factors. Almost any drug taken orally may cause an attack. Infection plays an important role in allergic rhinitis. The membranes of the allergic nose have a weakened resistance, partly because the circulation is impaired in the boggy tissues. The author feels that even the mildest case of perennial rhinitis deserves investigation. The complete avoidance of all offending agents is an ideal goal but hard to achieve. Desensitization becomes necessary when relief is not obtained by avoidance of the offending factors. Caution is important if injections are employed for desensitization; they should not be given too often. Furthermore, aspiration should always be done after the needle is inserted and before injection is made. If blood is obtained, the needle should be withdrawn and reinserted; then aspirate again before injection is made. Nasal polyps and sinus disease should be treated. The use of autogenous vaccines, x-ray treatments, antibiotics, cortisone, and corticotropin are of benefit at times. An attempt should be made to aid the patient in solving his emotional problems. The use of various drugs and measures to reduce the swelling of the nasal mucosa brings about symptomatic relief only.

Tennessee State Medical Assn. Journal, Nashville

46:357-398 (Oct.) 1953

- Ulcerative Colitis. A. Weinstein.—p. 357.
Ringworm of Scalp. J. W. Baird.—p. 367.
The Neglected Athlete. R. G. Brashear.—p. 371.

Texas State Journal of Medicine, Fort Worth

49:791-846 (Nov.) 1953

- Five Year Study of Texas Maternal Mortality. E. K. Blewett and G. F. Legett.—p. 795.
Rupture of Uterus. T. G. Gready Jr.—p. 802.
Physiology of Uterine Inertia. D. M. Haynes.—p. 806.
Urologic Complications During Pregnancy. F. G. Shedd Jr.—p. 810.
*Culdoscopy: Plea for More Widespread Application. L. C. Colwell.—p. 814.
Simple Diagnostic Approach to Menstrual Irregularities. W. P. Given and R. W. Gause.—p. 819.
Endometriosis in Private Practice. J. R. Donaldson.—p. 822.
Pelvic Evisceration in Advanced Pelvic Malignancy. E. M. Cyrus Jr. and R. L. Sewell.—p. 825.
Narcotics Prescription and Administration. P. R. Overton.—p. 829.
Pelvic Ectopic Kidney Associated with Pregnancy. J. G. Stouffer.—p. 833.

Culdoscopy: Plea for Wider Application.—Colwell reviews his experiences with culdoscopy in 60 women observed in a general gynecologic service. It was used in 26 patients with suspected ectopic pregnancy, and in 9 of these this diagnosis was verified. Tubal pregnancy was never proved after it had been ruled out by culdoscopy. The next most frequent indication for culdoscopy was adnexal pain. In 2 of these 10 cases, the cause of the pain was not discovered either at culdoscopy or by subsequent observation. In the remaining eight patients, the diagnoses were evenly divided between endometriosis and salpingo-oophoritis. Other indications for culdoscopy were menorrhagia, adnexal mass, amenorrhea, sterility, and masculinization. The patient is given an enema 9 to 12 hours prior to examination. The bladder is catheterized immediately prior to culdoscopy when the patient is in lithotomy position for bimanual examination. Meperidine (Demerol) hydrochloride, 100 mg. with scopolamine 1/150 grain (0.4 mg.), is given intramuscularly one hour prior to examination; and 50 to 100 mg. of meperidine is given intravenously immediately prior to insertion of the trochar. With the patient in the knee-chest position, the posterior fornix of the vagina herniates upward and forward between the two uterosacral ligaments and over the posterior surface of the uterus. At the highest point of the concavity about 5 cc. of 1% procaine (Novocaine) hydrochloride solution is injected into the vaginal mucosa. The perineum is elevated with a Sims speculum, and the cervix is drawn forward and slightly downward by a tenaculum toward the symphysis. The trochar is locked into the cannula, and, with a sudden thrust, the trochar is introduced into the peritoneal cavity. The trochar is withdrawn from the cannula, and the sterile culdoscope is inserted. The telescope has a range of 4 in. (10.16 cm.) beyond the tip of the cannula so that it may be moved in or out, anteriorly or posteriorly, and laterally. More structures may be brought into view by manipulation of the uterus with the tenaculum on the cervix or by suprapubic pressure created by an assistant. No serious complication occurred, except that in one patient the trochar entered a serous cystadenoma and about 75 cc. of clear serous fluid was obtained. When this patient was operated on four weeks later, there was no evidence of the previous accident. Culdoscopy deserves wide application, but it should not be employed to confirm the obvious. The patient in shock who gives a typical history of ectopic pregnancy and in whom is found a crepitant, bulging cul-de-sac and an excruciatingly tender adnexal mass certainly should not be subjected to culdoscopy.

Virginia Medical Monthly, Richmond

80:599-648 (Nov.) 1953

- Obligations, Responsibilities, and Rights of the Physician. J. L. Hamner.—p. 600.
Virginia State Health Department Legislative Program for Eradication of Tuberculosis. M. I. Shanholtz and W. F. Wagner.—p. 605.
Clinical Use of Digitalis Preparation in Congestive Heart Failure. R. R. Porter and R. P. Beckwith.—p. 610.
Localized Pulmonary Hypertrophic Emphysema. W. A. Johns.—p. 618.
Adenocarcinoma and Leiomyosarcoma Occurring in Same Stomach—Case Report. J. L. Smoot.—p. 621.
Choice of Drugs for Disturbed Psychiatric Patients. T. F. Coates.—p. 624.
Infant Mortality in Richmond. I. Grant and S. Shanks.—p. 626.
Solitary Diverticulitis of Cecum Simulating Acute Appendicitis. T. A. Kirk Jr.—p. 630.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

106:77-240 (No. 2-3) 1953. Partial Index

- *On Fibrotic, Non-Traumatic Stenosis of Common Duct. G. Söderlund.—p. 77.
Surgical Treatment of Congenital Anomalies of Bile Ducts. M. Sulamaa.—p. 95.
Partial Resection of Kidney in Large Hydronephrosis: Theoretical Foundation and Partial Results. E. F. Hjort.—p. 103.
Exstrophy of Bladder: Follow-Up Examination of 17 cases. A. Sanderud.—p. 117.
Irreparable Vesico-Vagino-Rectal Fistula Treated by Colostomy and Colpocleisis. A. Langenskiöld.—p. 122.
Perforated Peptic Ulcer, Gastric and Duodenal: Primary and Late Results from Treatment with Simple Suture. F. Biering, P. A. Gammelgaard and E. H. Guldhammer.—p. 128.
*Vagotomy in Treatment of Recurrent Peptic Ulcer After Billroth I or Billroth II Operation or After Gastro-Enterostomy: Review of 24 Cases. C.-G. Erfors.—p. 141.

Fibrotic Nontraumatic Stenosis of Common Duct.—The occurrence of fibrotic benign stenosis of the terminal common duct is reported in five men and six women between the ages of 33 and 78. Söderlund believes that this stenosis resulted from a chronic inflammatory process in the wall of the common duct. Such an inflammation was observed in 3 of the 11 patients; there was thickening of the wall of the duct, which contained turbid mucopurulent bile, and the duct was embedded in an indurated, inflamed hepatoduodenal ligament. In seven patients, the duct above the stenosis was more or less pronouncedly dilated, with a diameter varying from 15 to 35 mm., reaching the width of the small intestines in one patient. Cholecystectomy had been performed previously for gallstone in nine patients; the gallbladder and common duct of the remaining two patients did not contain any calculi. Pain of the biliary colic type was the presenting symptom in 10 patients; jaundice was observed in 7. Treatment consisted of choledochoduodenostomy in 10 patients, and choledochogastrostomy in 1. Of the 11 patients, 9 were followed up for from 2 to 10 years and 1 for 18 months; 1 was operated on only recently. Immediate and lasting relief from distress resulted from the treatment in nine patients, while in the remaining two recovery occurred gradually after some time.

Vagotomy for Recurrent Peptic Ulcer.—Between 1947 and 1950, 26 patients were subjected to vagotomy because of post-operative recurrence of peptic ulcer. Follow-up was done one to five years after the vagotomy on 21 patients. In 5 of the 21 the operation performed before the vagotomy was Billroth 1, in 13 Billroth 2, and in 3 a gastroenterostomy. The interval between the operation and the appearance of peptic symptoms in patients who underwent gastroenterostomy was 11 years; in those who underwent Billroth 1 operation it was 2 years and 9 months; and in patients who had the Billroth 2 operation it was 1 year and 7 months. Of the 21 patients, 12 were satisfied with the results of the vagotomy; of these, 6 had earlier undergone Billroth 2 operation, 1 gastroenterostomy, and 5 Billroth 1. Six patients, five of whom had been operated on by the Billroth 2 method and one who had undergone gastroenterostomy, were satisfied with the results of the vagotomy. Two who had had Billroth 2 operation were not satisfied with the result of the vagotomy, and one who had had a previous gastroenterostomy was dissatisfied. Results of vagotomy for postoperative peptic ulcer could thus be considered as good in 87.5% of the patients. This figure is compatible with those reported by other workers in this field. In no patient was vagotomy followed by atony of the stomach, severe diarrhea with nutritional disorders, or disturbed gastric motility. No definite signs of recurrence were observed. In view of the difficulties in performing resection for jejunal ulcer and the risks incurred by such an operation, vagotomy must be considered a useful method.

British Journal of Dermatology, London

65:389-424 (Nov.) 1953

- Shwartzman Phenomenon: Review with Consideration of Some Possible Dermatological Manifestations. A. Rostenberg Jr.—p. 389.
Note on Depigmenting Properties of Monobenzylether of Hydroquinone. L. Forman.—p. 406.
Camptodactylia (Landouzy) with Other Naevi. W. E. Alderson.—p. 410.

British Medical Journal, London

2:1231-1282 (Dec. 5) 1953

- Epidemiological Study of Rheumatoid Arthritis Associated with Characteristic Chest X-Ray Appearances in Coal-Workers. W. E. Miall, A. Caplan, A. L. Cochrane and others.—p. 1231.
Blood Supply of Femoral Head. M. Harty.—p. 1236.
*Hypothermia with Autonomic Block in Man. J. W. Dundee, T. C. Gray, P. R. Mesham and W. E. B. Scott.—p. 1237.
Production of Hypothermia. J. W. Dundee, W. E. B. Scott and P. R. Mesham.—p. 1244.
Hibernation Anaesthesia in Major Surgery: Report of 36 Cases. A. Smith and J. G. Fairer.—p. 1247.
Bacterial Content of Human Small Intestine in Disease of Stomach. J. Cregan, E. E. Dunlop and N. J. Hayward.—p. 1248.
*Treatment of Acute Pancreatitis with Hexamethonium Bromide. R. M. Davies, F. T. Moore and D. Wynn-Williams.—p. 1251.
Local Effects of Certain Medicaments on Teeth. P. M. C. James and G. J. Parfitt.—p. 1252.

Hypothermia with Autonomic Block.—A technique described as induced hypothermia with autonomic block was used for major surgery in 26 patients. Premedication consisting of meperidine (Demerol) hydrochloride and Phenergan (10-[2-dimethylamino-1-propyl]phenothiazine) was given intramuscularly three to four hours preoperatively. An intravenous infusion of isotonic sodium chloride solution or 5% dextrose was set up one hour later as a vehicle for administration of the "lytic cocktail" consisting of 50 mg. (2 cc.) of Chlorpromazine (10-[γ -diethylaminopropyl]-2-chlorophenothiazole), 100 mg. (2 cc.) of meperidine hydrochloride, and 50 mg. (2 cc.) of Phenergan. The initial injection was generally 2 cc. followed by supplements of 0.5 to 1 cc. at intervals of 15 to 20 minutes. Patients who were not asleep before the beginning of the infusion became unconscious after the first or second dose of the cocktail. With one exception, this occurred within 30 minutes of administration of the first dose. The rapidity of onset of unconsciousness and its depth were a guide to the time to begin surface cooling. On an average this was one and a half hours before operation. Ice-bags were first placed on the groin, and, in the absence of a response to this, the body was completely covered with ice. Shivering was looked for closely, and its occurrence taken as an indication for a further dose of the cocktail. In all patients cooling was continued until the patient was taken to the operating room. During the period of cooling, observations were made of blood pressure, pulse, and respiration every 15 minutes. The principles of anesthesia did not vary from those used for patients subjected to abdominal and thoracic surgery under normal circumstances. Replacement of blood loss was carried out as for normal cases. During the operation observations were made as for the period of cooling. On return to bed the patients were covered with a single sheet, and the appearance of shivering was an indication for the application of further covering. It was explained to the nursing staff that for the first 12 postoperative hours they were to consider their patients poikilothermic and to treat them as such, removing blankets should a hyperpyrexia occur. In two of the five deaths, one occurring during surgery and four within 24 hours to 16 days postoperatively, hypothermia may have contributed to the outcome. From their observations of the changes that occurred in the respiratory system, the cardiovascular system, and the body temperature with the amount of bleeding, the authors conclude that the danger of serious cardiac irregularity at temperatures lower than 28 C is real and is particularly imminent if cardiac manipulation is required. The difference in oxygen consumption between a patient at 82.4 F and 77 F is insufficient to warrant the extra risks involved by proceeding to lower temperatures. The reduction in bleeding during hypothermia was not always as pronounced as it was expected. At low temperatures the prolongation of the clotting time and/or bleeding time has on occasion been a source of embarrassment. It seems that hypothermia might be an added risk in patients whose myocardium is damaged. The indications for hypothermia would seem to be (1) when a degree of hypotension is required to control hemorrhage either for patients in whom large blood loss is expected or in whom even a small blood loss will embarrass the work of the surgeon; (2) in patients with a severe degree of anemia that can-

not be corrected before operation; (3) in operations on the heart and great vessels in which it may be necessary to cut off the cerebral circulation for a period of time; and (4) in thyrotoxicosis that cannot be controlled by medical treatment.

Hexamethonium Bromide in Treatment of Acute Pancreatitis.—Two men, aged 64 and 52 years, with acute pancreatitis confirmed by exploratory laparotomy remained in great pain after the abdomen was closed without drainage. A bilateral posterior splanchnic block was performed with 1:2,000 tetracaine (Amethocaine) hydrochloride in the older patient. The relief from pain was dramatic, but pain began to recur after six hours. It seemed reasonable to believe that ganglion-blocking agents, such as hexamethonium bromide, would relieve pain similarly to splanchnic block and would have none of the difficulties or dangers of repeated splanchnic blocks. The patient then was given orally 250 mg. of hexamethonium bromide via an indwelling Ryle's tube twice a day. Pain disappeared after six hours, and the next day it was possible to assess the patient as convalescent. Treatment with hexamethonium was continued for five days, the patient being discharged as cured on the 10th day. The other patient was given 250 mg. of hexamethonium bromide as soon as he was conscious, and administration of the drug was continued twice a day for the next seven days; every four hours blood pressure readings were carried out. The following day he was free of pain, and his convalescence was smooth and uneventful. He was discharged as well 12 days after the operation. The inflammatory changes in the pancreas of patients with acute pancreatitis bear a striking resemblance to thrombosis or emboli of the main vessels to other intra-abdominal organs and the upper and lower limbs. Gangrene, sloughing, and suppuration follow gross disturbances of the blood supply, and the severity of the symptoms may be related to the extent of the infarction. The relief of pain and the improvement in the general condition produced by the ganglion-blocking drugs in these two patients and in two additional patients treated with equally successful results since this paper was submitted for publication, were contrary to previous experience. Although the disease was robbed of its terrorizing pain by the drug, it cannot affect the established gangrenous or suppurative process in a gland that must be subjected to drainage. The authors feel that a vascular catastrophe is the causative factor in acute pancreatitis, and further studies along these lines may lead to a better understanding of the disease and simplify its treatment.

Bull. World Health Organ., Geneva

9:579-730 (No. 5) 1953. Partial Index

- Rodenticides in Bubonic-Plague Control. V. B. Link and C. O. Mohr.—p. 585.
- Application of DDT, BHC, and Cyanogas in Control of Plague in India. P. M. Wagle and S. C. Seal.—p. 597.
- DDT in Prevention of Plague in Ecuador. C. Sáenz Vera.—p. 615.
- Recent Studies on Immunity Response to Administration of Different Plague Vaccines. K. F. Meyer.—p. 619.
- Treatment of Bubonic Plague with Sulfonamides and Antibiotics. S. S. Sokhey, P. M. Wagle and M. K. Habbu.—p. 637.

Deutsche medizinische Wochenschrift, Stuttgart

78:1619-1650 (Nov. 20) 1953. Partial Index

- Anorexia Nervosa; Psychoendocrine Cachexia of Puberty. J. Decourt.—p. 1619.
- Bromsulphalein Test and Its Significance as Liver Function Test. E. Frey.—p. 1622.
- Neurogenous Traumatic Diabetes Mellitus. B. Deimel.—p. 1627.
- *Selection of Patients with Congenital Cardiac Defects for Cardiac Surgery. F. F. Niedner, E. Zeh and G. Griesser.—p. 1629.

Selection of Patients with Congenital Cardiac Defects for Surgery.—Commissurotomy according to Bailey and co-workers' technique was performed on 10 patients between the ages of 22 and 37 years with mitral stenosis. Combined widening of the narrowed orifices was done in 6 of the 10 patients, while digital valvotomy was sufficient in 4. Blunt procedure whenever possible was used with the combined technique for the exact demonstration of the valvular angles so that the valvular segments could be spared by the subsequent incision of the

fibrous bands. Incision rather than digital dilatation of the orifice was done because a recurrence caused by repeated shrinking of the ring of the valve may soon be expected from mere dilatation. The authors agree with Bolton and co-workers that the orifice should be enlarged only by incision to lessen the risk of mobilization of calcium deposits. Small pleural effusions and pericardial friction were observed in all patients, but more extensive pericardial effusions were not. Postoperative administration of Irgapyrin, a proprietary containing equal parts of phenylbutazone and aminopyrine was used satisfactorily for relief of pericardial pain and restoration of temperature to normal. Postoperative auricular fibrillation occurred in two patients and was controlled by quinidine and procaine amide respectively. Routine preoperative and postoperative oral administration of the latter drug in small doses is recommended. All the patients survived the operation. Follow-up for 12 months revealed considerable improvement in four patients and good improvement in the other six. Diastolic murmur disappeared in four patients, became less pronounced in five, and was unchanged in one. The authors divide the clinical aspect of mitral stenosis in four groups on which the indications for surgical intervention may be based. The first group comprises patients whose work capacity is not impaired and in whom, therefore, surgical intervention is not indicated. The second group comprises those with slightly impaired work capacity for whom surgical intervention is indicated. For patients with definitely impaired work capacity who form the third group, operation is necessary, while patients with dyspnea at rest and considerable complaints associated with the slightest physical activity who form the fourth group should not be operated on. From their experience and from the results obtained by other workers in 1,346 cases collected from the literature, the authors state that improvement was obtained in 92.5% of the patients who survived the operation and that the operative mortality was 10.4% including the relatively high mortality in the first patients operated on. No patients became worse as a result of the commissurotomy and surgical intervention is to be considered a great progress in the treatment of mitral stenosis. Surgical treatment of mitral insufficiency is still in its initial stage, and the authors have no experience with it. Surgical technique for stenosis of the aorta is still in the developmental stage. Of two patients operated on by the authors, one died, while the other obtained considerable improvement. In contrast to the surgical treatment of mitral stenosis, severe valvular calcification is not to be considered as contraindication to surgical intervention but may jeopardize its permanent success.

Helvetica Paediatrica Acta, Basel

8:377-490 (Nov.) 1953. Partial Index

- Periodic Abdominalgia. H. Zellweger and H. A. Reimann.—p. 377.
- Continued Treatment with Cortisone for Congenital Adrenogenital Syndrome. A. Prader.—p. 386.
- *Treatment of Tuberculous Meningitis and Results of Five Year Experience in Children's Hospital at Zurich. E. Rossi and A. Stöckli.—p. 451.
- *Present Results of Treatment of Tuberculous Meningitis with Streptomycin, p-Aminosalicylic Acid and Isoniazid, in Children Admitted to the A. Kyriakou's Children's Hospital in Athens. S. Charocopoulos and E. Inglessi.—p. 481.

Treatment of Tuberculous Meningitis.—Of 104 children with tuberculous meningitis treated between 1947 and 1953 at the Children's Hospital in Zurich, results were evaluated in 62, but they were not in the remaining 44 for the following reasons: follow-up of less than one year; lack of bacteriological diagnosis; admission to the hospital after more than one week of previous treatment elsewhere; and death occurring within the first week after admission. Seven of the 62 patients were given high doses of streptomycin and all of them died. Of seven additional children who received low doses of streptomycin for a short period or who were given several short courses of treatment at long intervals, five died. Of the remaining 48 children who were treated with low doses of streptomycin combined with sulfones or p-aminosalicylic acid for a long period, 30 were cured (a survival rate of 63%). Five of the 30 children had suffered permanent impairment consisting of hydrocephalus with organic psychosyndrome in 3 and of auditory damage in 2. Twenty-eight of the 30 survivors had mild vestibular damage. Tuberculosis of bone and

joints occurred in three children after recovery from the tuberculous meningitis. Transitory complications in the course of tuberculous meningitis consisted of pareses, hydrocephalic bouts, psychic disturbances, and disturbances of the autonomic nervous system. Fatalities were distributed equally over the first nine months of treatment. The mortality was higher among children in the first three years of life (52%) than in older children (22%). The higher mortality among the younger children may be related to the difficulty of making an early diagnosis in infants. The prognosis of tuberculous meningitis depends mainly on the stage of the disease at the time treatment is started (stage of pure meningitis, stage of sensory and peripheral nerve involvement, or stage of coma). The death rate was not increased among the children in whom meningitis was associated with miliary tuberculosis; 7 of 21 children with meningitis and miliary tuberculosis died, and there were 6 deaths among 21 children without miliary tuberculosis. In contrast to this, the prognosis is poor in patients in whom meningitis occurs while they are being treated with streptomycin for miliary tuberculosis; four of six children in this group died. The protein, chloride, and sugar values in the spinal fluid at the time of the institution of treatment did not play a decisive role with respect to prognosis. Since March, 1952, 18 children were given combined treatment with streptomycin and isoniazid and occasionally with *p*-aminosalicylic acid. This combined therapy proved highly effective and its great advantage is its shorter duration; the one and a half year follow-up period, however, is too short to permit definite conclusions.

Combined Treatment of Tuberculous Meningitis with Streptomycin, Para-Aminosalicylic Acid, and Isoniazid.—Of 141 children with tuberculous meningitis receiving combined treatment with streptomycin, *p*-aminosalicylic acid, and isoniazid at a children's hospital in Athens, Greece, 72 died and 69 recovered; 12 had recurrences and 5 of these died. The total mortality was 51.06%. Mortality was particularly high among children less than two years of age, among those who had been treated previously with streptomycin for other tuberculous conditions, and among those with meningitis associated with miliary tuberculosis. Changes of the fundus of the eye occurred in 79 patients. Vestibular and auditory disturbances were less frequent with the combined treatment than with streptomycin alone; there were only four cases of deafness. Endocrine disturbances were observed in 35 patients, psychic disturbances in 18, and mild renal disturbances in 30. Disturbances of the liver occurred in only seven patients; in six of these the size of the liver was increased and in one there was jaundice. Cutaneous manifestations were observed in 10 children. At present combined treatment of tuberculous meningitis is carried out with 400 to 800 mg. of streptomycin daily according to the age of the patient and the severity of his condition; intrathecal doses of streptomycin vary from 25 to 50 mg. daily and suboccipital doses from 5 to 10 mg. daily. Three to 6 gm. of *p*-aminosalicylic acid is given by mouth daily. Isoniazid is administered orally or intramuscularly in doses of 5 to 10 mg. per kilogram of body weight daily and in intrathecal doses of 0.5 to 1 mg. per kilogram of body weight daily. The duration of this combined treatment may be shortened to 3 to 6 months as compared to that of 8 to 12 months with streptomycin alone.

Journal of Forensic Medicine, Cape Town

1:65-128 (Oct.-Dec.) 1953

Death from Dicoumarol Poisoning: Case; Indictment and Verdict.—p. 68.
Dicoumarol: Pharmacological and Toxicological Aspects. F. Stephen-Lewis.—p. 87.

*Objective Detection of Lying. F. R. Ames.—p. 94.
Finger-Prints and Twins with Special Reference to Identical Twins. L. Herrman.—p. 101.

Some Neglected Aspects of Barbiturate Therapy. W. R. Thrower.—p. 106.
Problem of Race Determination: Limiting Factors in Identification of South African Races; Physical Anthropologist's Approach. P. V. Tobias.—p. 113.

Detection of Lying.—According to Ames it has long been known that when the mind seeks to conceal, the body may betray fear and guilt by emotional disturbances. Attempts to measure bodily reactions to guilt date back to antiquity. After

citing some ancient customs and stories the author mentions 19th century attempts to measure bodily reactions to guilt scientifically and then briefly reviews more recent efforts to detect lying by registering the changes in blood pressure and respiration that accompany emotional stress. The method of using Keeler's polygraph or lie detector is described, and the attitude of the courts about the admissibility of lie detector results as evidence is discussed. A lie detection test is a stressful experience, whether one is guilty or innocent. The persons who use the instrument are aware of its more obvious limitations. They know that some persons will be unsuitable for testing because of circulatory or respiratory disease. They know, too, that results are valueless if a subject is too feeble-minded or mentally deranged to understand what is going on. They know that psychopaths have no moral sense about lying and so will not register any emotional reaction. They are aware that the phlegmatic type of person shows very little disturbance, and the emotional, anxious type shows a great deal. There has been some retreat from the earlier enthusiasm about the value of the polygraph. The author feels that the proper perspective can be gained when it is remembered that all the lie detector does is to measure at two points the generalized physiological reaction to stress. It does this by combining two simple techniques that have been used by the medical profession for decades. There is nothing magical about the instrument, and to trade on the fear and the ignorance of suspects by assuring them that the lie detector never lies, because it is some mysterious and infallible invention of science, is a reprehensible way of dealing with a person whose guilt is in doubt. All that one can say definitely is that an emotional reaction is a physiological event. It is a nonspecific event; there is no special reaction peculiar to guilt.

Journal de Médecine de Lyon

34:821-876 (Nov. 5) 1953. Partial Index

*Prognosis of Tuberculous Meningitis in the Child. Bernheim, J. Lanternier and Robert-Rougier.—p. 821.

Prognosis of Tuberculous Meningitis in the Child.—Study of 224 children with tuberculous meningitis showed that survival and recovery depend primarily on the age of the child, the time at which treatment is begun, the extent and severity of the encephalitic symptoms then present, the therapeutic measures employed, and the strictness with which the treatment is pursued. Approximately two-thirds of the children with tuberculous meningitis now recover, and the late results, taken as a whole, are encouraging. Children less than a year old, in whom the premonitory symptoms are few or pass unnoticed, are usually in poor condition on arrival at the hospital; none of that age group in this series survived. Treatment must be started early, both in infants and in older children. Particular care should be used when fever persists or recurs in children with apparently mild primary infections in the lungs. The slightest abnormal development in the course of a primary infection should be the signal for prompt lumbar puncture, which often makes it possible to treat tuberculous meningitis before it has become clinically established, thus improving the prognosis very considerably. The neurological state of the child when treatment is started is more important than its physical condition. Coma, mental confusion, and epileptic attacks have an ominous significance, and hemiplegia, even when slight, ophthalmoplegia, and a simple Babinski sign also indicate a need for close daily surveillance. Failure to recover Koch's bacilli on lumbar puncture has little prognostic value because the meningitis is equally virulent whether the cultures are negative or positive. The coexistence of pulmonary miliary tuberculosis and tuberculous meningitis does not seem to be particularly detrimental, but it does necessitate prolonged treatment. Examination of the eye grounds provides valuable information. The appearance of new granulations or tubercles is often indicative of relapse. Treatment should then be intensified or continued, even though the clinical and laboratory findings suggest that it may safely be terminated. Slight papillary edema without signs of blocking usually disappears in two or three months, but edema seen later during treatment and associated with evidences of blocking is serious and should lead to ven-

tricular puncture. Surgical treatment is now limited to trepano-puncture of the two frontal ventricular horns with instillation of streptomycin. This simple procedure has proved lifesaving in many cases. General antibiotic treatment is usually continued for from 8 to 12 months or until the cerebrospinal fluid becomes normal.

Journal of Mental Science, London

99:633-870 (Oct.) 1953. Partial Index

- Some Factors in Aetiology of Maladjustment in Children: Comparison of 100 Children "Ascertained" as in Need of Special Educational Treatment and 100 Others Referred to Child Guidance Clinic. P. Holman.—p. 654.
- Nature, Origin and Distribution of Corpora Amylacea of Brain with Observations on Some New Staining Reactions. N. Alder.—p. 689.
- Investigation into Supposed Differences Existing Between Mongols and Other Mentally Defective Subjects with Regard to Certain Psychological Traits. D. A. Blacketer-Simmonds.—p. 702.
- Observations on Epileptic Automatism in Mental Hospital Population D. W. Liddell.—p. 732.
- Experiences and Results in Prefrontal Leucotomy: Clinical Study of 339 Leucotomized Patients. S. Kostić.—p. 786.
- Suxethonium Bromide in E.C.T. H. Fisher and A. K. Bannister.—p. 796.
- "Brevitidil M" as Muscle Relaxant in Electro-Shock Treatment. J. J. Danik.—p. 800.
- Further Observations on Effects of Lysergic Acid Diethylamide. W. Mayer-Gross, W. McAdam and J. W. Walker.—p. 804.
- *Small Experiment in Use of Acetylcholine in Treatment of Neurosis. D. T. MacLay.—p. 809.

Acetylcholine in Treatment of Neurosis.—Since it had been asserted by some investigators that acetylcholine is of value in the treatment of some anxiety states, particularly in those accompanied by tension, MacLay decided to try this drug in certain patients who were responding insufficiently or not at all to psychotherapy. He began with a dose of 0.06 or 0.08 gm. in 1 cc. of water. He gradually increased this dose until 0.2 gm. had been reached. Although some patients tolerate 0.25 gm. or more, caution is necessary with this dose. Immediately after the injection, the patient feels acutely ill; the pulse slows or stops; and there is a brief loss of consciousness. The author has learned not to feel undue concern if the patient is pulseless for 25 seconds. The face is usually red and congested, and this is followed by pallor. Within a minute or two, the patient is able to get up and walk away. MacLay prefers to give the minimum dose that produces unconsciousness. Administering 1.5 grains (0.1 gm.) of secobarbital (Seconal) sodium beforehand has proved helpful in some patients who feel severe discomfort from the acetylcholine injection. As antidotes for emergencies the author keeps on the tray epinephrine (Adrenalin), nikethamide (Coramine), and atropine, and a long needle just in case an intracardiac injection is required. He has used acetylcholine so far in 11 patients whose histories are presented. Three appeared to obtain considerable benefit. The total impression was that it will be worth while to continue using this new remedy in selected patients.

Kinderärztliche Praxis, Leipzig

21:481-528 (Nov.) 1953. Partial Index

- *Therapy of Hydrocephalus in Tuberculous Meningitis. G. Janssen and D. Wilms.—p. 481.
- Disturbances from Excessive Dosage with Isonicotinic Acid Hydrazid. J. Eigner.—p. 485.
- Primary Vaccination Against Smallpox in Older Children. H. Stolte.—p. 494.
- Polyradiculitis (Guillain-Barré Syndrome). H. Rodeck.—p. 498.
- Clinical Aspects of Hepatic Cirrhosis in a Child. H. Appelt.—p. 503.

Therapy of Hydrocephalus in Tuberculous Meningitis.—Despite progress in treatment by chemotherapeutics and antibiotics, it is often impossible to arrest tuberculous meningitis during the exudative stage. During the chronic state the normal relationship between production and resorption of the cerebrospinal fluid often becomes impaired, and a more or less severe hydrocephalus results. On the basis of four case histories, which were selected from a large number, Janssen and Wilms show how difficult it is to make a prognosis. The children were in a comatose state, most of them for months and one for more than half a year. They had to be fed by tube. Choked disk and other clinical signs indicated the presence of hydrocephalus, which was so severe that there was

little hope that life could be preserved. It seemed that mental and physical defects would result even if death could be prevented. After temporary interruption, treatment with streptomycin was resumed, however, and the child eventually recovered without mental defects, although hearing was defective. Results obtained in the other three cases were similar. The authors advise great caution with regard to surgical interventions for hydrocephalus, because they found that such treatment was ineffective in several cases and treatment with antibiotics may arrest hydrocephalus even in chronic cases of tuberculous meningitis.

Lancet, London

2:1109-1162 (Nov. 28) 1953

- Future of Clinical Neurology: Address in Homage to Ramon y Cajal. R. Brain.—p. 1109.
- *Coronary Heart-Disease and Physical Activity of Work. J. N. Morris, J. A. Heady, P. A. B. Raffle and others.—p. 1111.
- Gas-Gangrene Infection in Operating-Theatre. S. Sevvitt.—p. 1121.
- *Cortisone and Rheumatoid Disease. H. F. West and G. R. Newns.—p. 1123.
- Skin Test for Mumps Using Cerebrospinal Fluid from Cases of Mumps Meningitis. C. Choremis, C. Danelatou, C. Dentaki and D. Gouttas.—p. 1126.
- Hepatic Venous Hum in Cirrhosis of Liver. A. J. S. McFadzean and J. Gray.—p. 1128.
- Right-Sided Thoracic Approach for Combined Lobectomy and Mitral Valvotomy. K. M. Shaw.—p. 1130.

Coronary Heart Disease and Physical Activity of Work.—Study of the relations of physical activity and inactivity in work to coronary heart disease among middle-aged men suggested the following hypothesis: Men in physically active jobs have a lower incidence of coronary heart disease in middle age than men in physically inactive jobs. More important, the disease is not so severe in physically active workers, in whom it tends to appear first in relatively benign forms, especially angina pectoris, and to have a smaller early case-fatality and a lower early mortality rate. This hypothesis was tested in three ways, with the following results. 1. The early mortality rates of physically more active workers (conductors and postmen) were lower than those of physically less active workers (drivers and switchboard operators). 2. Analysis of the statistics available for various occupations showed that the mortality from coronary heart disease in groups doing heavy work was rather less than half that of the groups doing light work. 3. Classification of the occupations of men dying of coronary heart disease as given in a trial sample of death certificates showed that fewer heavy workers die in the first clinical episode of the disease. This supports the belief that physical activity in work is associated with less severe forms of coronary disease. Many other factors—physical and psychological as well as occupational and social—enter into the problem, and it is quite possible that unfavorable factors cluster in certain occupational groups. Nutritional differences between various groups and classes in particular may prove important in their relation to atheroma, which is the basis of the disease.

Cortisone and Rheumatoid Disease.—Cortisone acetate, in doses of from 50 to 75 mg. a day, has been given orally to 27 patients with rheumatoid disease for an average of 19 months. Each patient was paired with a control chosen from a group of 1,000 not receiving cortisone, and in every case the pairs were matched as closely as possible in age, duration of disease, and distribution of affected joints. The patients treated with cortisone and the controls were then compared in respect to (1) stiffening of joints with rest; (2) need for analgesics; (3) physical ability; (4) erythrocyte sedimentation rate; (5) hemoglobin values; (6) x-ray changes; (7) strength of grip; and (8) well-being. The results of the comparison indicate that the course of rheumatoid disease is not favorably affected by long-term cortisone treatment, in spite of the early benefit enjoyed by some patients. The relative adrenocortical deficiency and the acute deficiency at times of stress that may follow the withdrawal of cortisone acetate after prolonged therapy should also be considered in weighing the evidence for and against its long-term use. Death has undoubtedly been hastened by cortisone therapy in some cases. These findings do not exclude the possibility that certain types of rheumatoid disease may be bene-

fited by prolonged administration of cortisone acetate. Present knowledge of the metabolism of corticosteroids does not warrant excluding them from participation in the pathogenesis of rheumatoid disease.

Medical Journal of Australia, Sydney

2:661-700 (Oct. 31) 1953. **Partial Index**

- Frigidity in the Female. J. W. Johnstone.—p. 665.
Epidural Spinal Haemorrhage, with Report on Two Cases. M. Sadka.—p. 669.
Mortality in Australia from Influenza and from Diseases of Respiratory System. H. O. Lancaster.—p. 672.

2:701-736 (Nov. 7) 1953

- Making Doctors. E. Downie.—p. 701.
Report on "Mysoline" in Treatment of Mental Hospital Epileptics. B. G. Burton-Bradley.—p. 705.
"Mysoline"—Its Use in Epilepsy. J. A. Game.—p. 707.
"Mysoline": Clinical Evaluation of New Drug in Treatment of Refractory Cases of Epilepsy. G. Selby.—p. 709.
Surgical Treatment of Recurrent Parotitis. H. H. Eddey and G. McKenzie.—p. 715.

2:737-772 (Nov. 14) 1953

- The Medical Witness in Court. Judge Conybeare.—p. 737.
Simultaneous Immunization of Infants Against Whooping-Cough, Diphtheria and Tetanus. E. A. North, N. J. Lehmann and R. W. Patterson.—p. 740.
Haematological Reactions in Hypophysectomized Rats After Injection of "Amparon," Cortisone and Adrenaline. L. A. G. Hissink.—p. 746.
New Catheter Syringe. R. J. Silverton.—p. 749.
Some Aspects of Prolonged Gestation. G. D. Ley.—p. 749.

Minerva Medica, Turin

44:1181-1220 (Oct. 27) 1953. **Partial Index**

- Scientific Picture of Medical Genetics. L. Gedda.—p. 1181.
*Use of a Methonium Salt in Arterial Hypertension. P. C. Feraboli.—p. 1187.
Blood Chemistry Studies of Mediterranean Hematological Syndromes: Proteinemia and Serum-Colloidal Reactions in Minor Forms of Mediterranean Hematological Syndromes. E. Cugudda and S. Agnissetta.—p. 1189.
Observations on Use of Betula Alba in Poliomyelitis Paralysis. G. Dadone.—p. 1193.

Pentamethonium in Hypertension.—Pentamethonium was given to 35 patients with chronic and acute hypertension. Thirty patients were treated on an ambulatory basis and received the salt orally in doses of 20 cg. at first every 12 hours and later four to six times daily for from four to eight weeks. A fall of from 20 to 60 mm. Hg occurred in the systolic pressure whereas the drop in the diastolic pressure was less pronounced. This decrease was especially marked during the first three hours after the administration of the salt with disappearance of headache, dizziness, and dyspnea. Vomiting and constipation developed in eight patients to whom laxatives were given; a few patients complained of disturbances in micturition and the dose of pentamethonium was lowered. In a follow-up one month after discontinuation of the therapy the improvement was still present in 40% of the patients, whereas the arterial pressure had a tendency to return to the initial values in 52%. The therapy had to be discontinued in 4% because of tachycardia, headache, fainting sensation, and gastric disturbances; the treatment had failed in 4% despite the administration of doses as high as 120 cg. of pentamethonium daily for one week. Five patients with hypertension and symptoms of intracranial hypertension and papilledema who were hospitalized because of severe hypertensive attacks were given the salt intravenously in initial doses of 10 mg., increased gradually to 50 mg., administered in isotonic sodium chloride solution every 8 to 10 hours daily. The blood pressure dropped within 10 minutes, and drowsiness, headache, and vomiting disappeared. The induced hypotension was greater and occurred more abruptly in these patients, but the action of the salt lasted for a much shorter time. The intravenous route of administration is contraindicated for prolonged use and, therefore, for patients with chronic hypertension, since it is difficult to find a proper single dose and to maintain a constant hypotension even if the drug is given two or three times daily.

This route may prove useful in patients with acute forms of hypertension such as pseudoremia and eclampsia of pregnancy. Whenever pentamethonium is given intravenously, the patient should be watched carefully to prevent a possible collapse.

New Zealand Medical Journal, Wellington

52:315-444 (Oct.) 1953. **Partial Index**

- The Yes Man. H. Ogilvie.—p. 317.
Practical Details of Treatment of Hypertension by Hexamethonium Salts and by Pentamethylene 1:5-Bis-N-(N-Methyl-Pyrrolidinium) Bitartrate. F. H. Smirk.—p. 325.
Psychiatry in Undergraduate Medical Teaching. W. Ironside.—p. 349.
Treatment of Anxiety States in General Practice. D. G. McLachlan.—p. 356.
Surgery of Pulmonary Tuberculosis. R. Nicks.—p. 366.
Psychiatric Aspects of Electroencephalography. D. W. Rowntree.—p. 374.
*Bulbar Poliomyelitis Following Tonsillectomy. N. R. Mackay.—p. 386.
Congenital Pancreatic Fibrosis: Report of Survival in Young Adult. E. D. Burnard.—p. 395.
Mumps Virus Antihemagglutinin Values in Cancer Patients. J. Logan.—p. 400.
Clinical Findings Following Leucotomy. K. R. Stallworthy.—p. 405.
Spontaneous Cardiac Rupture. F. J. Cairns.—p. 412.

Bulbar Poliomyelitis Following Tonsillectomy.—Mackay presents a family of three children, aged 8, 5, and 3 years, who had had recurrent upper respiratory infections, with ear and chest complications. Because of this and because the risk of infection from poliomyelitis was thought to be remote, the tonsils and adenoids were removed. The operations were carried out on Nov. 26, 1952. On Dec. 3, all three children had fever and temperature up to 101 F, and this fever and malaise persisted. On Dec. 8, child A, aged 8, appeared very ill, had difficulty coughing and swallowing, and was admitted to the hospital. The cerebrospinal fluid showed cells, and a provisional diagnosis of bulbar poliomyelitis was made. The following day some weakness of the left side of the face was present; the palate moved but swallowing was impossible. On Dec. 9, child W was admitted with a temperature of 102.4 F, some neck rigidity, and weakness of the left upper arm. Twenty-four hours later pharyngeal paralysis appeared, and he died on Dec. 11, in spite of intravenous therapy, oxygen, etc. Child A required intravenous therapy for five days, and, after causing some anxiety, she made a complete recovery. The youngest child, apart from a few days of fever, showed no evidence of poliomyelitis. The author reviews the literature on the relationship between bulbar poliomyelitis and tonsillectomy and concludes that the risk is not negligible. Even those who deny any causal relationship between tonsillectomy and poliomyelitis agree that elective surgery should be postponed during an epidemic. The position with regard to diphtheria-pertussis immunization is perhaps not quite so clear. In spite of the fact that cases have been reported in which an injection appears to have produced a locus minoris resistentiae and converted an otherwise nonparalytic into a paralytic infection, the association is rare and still lacks proof. But when poliomyelitis is abnormally prevalent, the possibility that immunization may add an extra risk must seriously be considered.

Nordisk Medicin, Stockholm

50:1421-1454 (Oct. 15) 1953. **Partial Index**

- Encopresis in Childhood: Review and Report of 111 Cases. T. Walthen.—p. 1421.
Prematurity as Factor in Origin of Neuropsychiatric Diseases: I. Prematurity and Psychoinfantilism. H. Sjögren.—p. 1429.
*Function of Adrenal Cortex in the Insane. O. Lingjaerde.—p. 1442.
100 Cases of Lobotomy. Some Clinical Viewpoints. S. Foltmann.—p. 1449.

Function of Adrenal Cortex in Insane.—Lingjaerde examined the 17-ketosteroid excretion in 93 insane patients and the reaction to epinephrine, corticotropin (ACTH), and insulin in 122 insane persons. No patient showed abnormal reaction to any of the tests. Low excretion of 17-ketosteroids was especially connected with the apathy-stupor syndrome, and a high excretion seemed to be connected particularly with psychopathological symptoms, perhaps to be called the alarm syndrome. So far no definite support has been found for the concept that adrenal deficiency is characteristic of any definite form of mental disease or any psychopathological syndrome.

with the possible exception of acute delirium. In not a few patients, especially those with puerperal psychosis and involution melancholia, there were signs that might point to a hypopituitarism. Hypoglycemia was prolonged in more than half the insulin tolerance tests. This "hypoglycemia unresponsiveness" as a rule occurred in patients who refused to eat and had urobilinuria and ketonuria. The insulin reaction was returned to normal with increased administration of carbohydrates, and the urobilinuria and ketonuria disappeared when the insulin reaction became normal. In some insane patients, especially in the active phase, there is increased carbohydrate need that may depend on either stress or failure to utilize carbohydrates. When such patients refuse food, a relative carbohydrate deficiency easily occurs that will soon lead to disturbances in the carbohydrate metabolism and can cause disturbances in the function of the liver and certain endocrine organs and thus express itself not only in hepatic symptoms but also in an abnormal insulin-hypoglycemia reaction. It is thought reasonable to assume that the abnormal insulin-hypoglycemia reactions in insane persons are due to the effect of carbohydrate undernourishment, alone or in combination with other factors.

Pediatrics, Naples

61:665-848 (Sept.-Oct.) 1953. Partial Index

Study of Renal Function in First Infancy. L. Parenzan and F. Sereni.—p. 665.

Abt-Letterer-Siwe Type of Acute Malignant Histiocytary Reticuloses of Infancy; Relationships with Other Malignant Reticuloses of Infancy: Eosinophil Granuloma of Bones and Hand-Schüller-Christian Disease. M. Belloni.—p. 688.

*Intradermal Administration of Corticotropin in Treatment of Whooping Cough. G. Di Gruttola.—p. 719.

Corticotropin (ACTH) in Whooping Cough.—Corticotropin was given to 16 children between 1 month and 3 years of age with whooping cough. Three infants were hospitalized; the others were treated on an ambulatory basis. The paroxysmal phase of the disease had been present in nine for one week, in five for 10 days, in one for 20 days, and in one for two months. A daily dose of 3.5 mg. of active ultrafiltrable fraction of corticotropin was injected intradermally in the forearm. The treatment was continued for from 5 to 13 days. In few cases only corticotropin was combined with antibiotics. The drug was tolerated well, and its good effects began to appear after 24 hours. The number and intensity of the attacks were reduced to half by the second day; cyanosis and vomiting disappeared by the third day; and appetite and weight began to increase and general condition to improve. A follow-up some time later revealed that all the children were definitively cured; they had gained weight and were in good general condition. The mechanism of action of corticotropin in whooping cough is obscure.

Presse Médicale, Paris

61:1479-1498 (Nov. 14) 1953

Use of Brinkman's Oxymeter in Study of Rate of Blood Circulation. G. Brouet and M. C. du Perron.—p. 1479.

Pharmacological Aspects of Principal Soluble Theophyllines. A. Quevauviller and H. Morin.—p. 1480.

*Hyperglycemia Without Glycosuria: Physiopathology and Treatment. H. Lestrade.—p. 1482.

Hyperglycemia Without Glycosuria.—The classic concept of diabetes mellitus does not account for the condition of hyperglycemia without glycosuria, which is, in fact, occasionally found. Sometimes it develops in the course of diabetes. Actually, this condition represents a nephropathy and not, as might be presumed, a spontaneous remission in the diabetic patient's condition. Based on the fact that the amount of glucose burned by diabetics is the same as in normal persons, the new concept that diabetes results from an inability of glucose to enter a cell, rather than a disturbance in glycometabolism, explains the possibility of hyperglycemia without glycosuria. This syndrome always has an unfavorable prognosis, since it indicates the presence of renal lesions. There are also usually generalized vascular lesions, especially retinitis. Its treatment requires the observance of its dual causal mechanism; that is,

the regular diabetic regimen with insulin remains unaltered, but is accompanied by vitamin therapy and limitation of proteins and fats, and electrolytes according to individual tolerance. Testosterone and vitamin B may also be given; and the experimental use of heparin for its proposed ability to improve the lipoprotein balance of these patients should be kept in mind for the future.

Tubercle, London

34:287-312 (Nov.) 1953

Filtrate of Tuberculous Pus as Therapeutic Agent. M. C. Wilkinson, J. B. Penfold and E. Wilder.—p. 288.

Mantoux Test in Tuberculous Meningitis. L. M. Taylor, H. V. Smith and R. L. Vollum.—p. 296.

Tuberculosis in Nigeria. E. H. Braun.—p. 301.

Ugeskrift for Laeger, Copenhagen

115:1565-1608 (Oct. 22) 1953. Partial Index

*Causes of Cancer of Lung. J. Clemmesen and E. Jensen.—p. 1565.
Cancer of Prostate with Special Regard to Radical Operation. E. Bandier.—p. 1585.

*Treatment of Superficial Cancer with Ultra-soft Roentgen Rays. C. T. Schmidt and E. Amdrup.—p. 1590.

Remarks on Cancer of Lip. J. Nordentoft.—p. 1596.

Causes of Cancer of Lung.—Clemmesen and Jensen discuss the marked increase in cancer of the lung in men, especially men in middle life and less well-to-do classes, and review investigations carried out on the cause of cancer of the lung. With reference to occupational causes, the authors find pulmonary cancer to be relatively rare even among workers exposed to carcinogenic substances, with the exception of the miners in the Erzgebirge. Occurrence of increase also in rural districts weakens the concept that contamination of the air may play a contributing part in the action of cancerogenic combinations on the lungs, and further, this assumption cannot explain why the disease has not increased among women and is inconsistent with the increase particularly among younger persons, although a weak indirect supporting effect on factors with strong cancerogenic action cannot be excluded. It is not possible, the authors find, to explain that there are more smokers among patients with cancer of the lung than among control persons except by the assumption of a causative relation. From a biological viewpoint it must be regarded as practically certain that the primary cause of cancer of the lung lies in the agent that more frequently and in greater concentration than any other comes into contact with the affected organ and has been shown to have a weak cancerogenic effect on animals and can therefore with reason be thought to have it on man. The academic proof of the cancer-producing effect of tobacco, for example, can be obtained only by removing the harmful influence of the assumed agent from a population that has already shown itself to react with the disease.

Treatment of Superficial Cancer with Ultra-soft Roentgen Rays.

—Irradiation with ultra-soft roentgen rays, Schmidt and Amdrup state, is a quick and certain treatment of skin cancers less than 2 mm. in thickness. The principle is to give sufficient dosage to the tumor and at the same time treat leniently the deeper normal cells and their blood supply. The treatment is carried out in one session of a few minutes' duration; the danger of radiation necrosis is slight; and the cosmetic results are excellent. If the cancer is allowed to grow to over 2 mm. in thickness the somewhat harder roentgen rays then necessary are more dangerous to the underlying tissue and the risk of recurrence and radiation necrosis is greater. Cancer of the skin was established by biopsy in 77 patients, of whom 48 were between 60 and 80. There were in all 82 cancers. The 69 cancers less than 2 mm. thick were treated with ultra-soft roentgen rays with good results; in one case there was recurrence, but repeated treatment was without complications and the patient is well five years after the treatment. The 13 cancers more than 2 mm. in thickness received slightly harder roentgen rays, with uneventful course in seven cases and complications in the form of recurrence, glandular metastases, or radiation necrosis in six. Follow-up during a five year period revealed 18 deaths; in 14 of these there had been no complications and death was not due to cancer.

BOOK REVIEWS

Rehabilitation Centers in the United States. By Henry Redkey. Compilation of information submitted by 40 rehabilitation centers for first national conference on rehabilitation centers, December 1-3, 1952, under sponsorship of National Society for Crippled Children and Adults and Office of Vocational Rehabilitation, U. S. Department of Health, Education, and Welfare. Paper. \$1. Pp. 128, with illustrations. National Society for Crippled Children and Adults, 11 S. LaSalle Street, Chicago 3, 1953.

This monograph is an outgrowth of the first National Conference on Rehabilitation Centers, as a result of which detailed descriptions of 40 rehabilitation centers in the United States were compiled. It is pointed out in the monograph that "these forty centers probably are representative of all the centers in the country but they do not constitute a listing of every center in the United States. They range from teaching centers which are part of great universities to small curative workshops with one or two therapists serving outpatients." The book contains a general review of rehabilitation centers, teaching and research centers, centers located in and operated by hospitals and medical schools, community centers with facilities for inpatients, community outpatient centers, insurance centers, and vocational rehabilitation centers. It will be most useful to all interested in rehabilitation. In addition to simply listing the names of the forty centers, it contains brief discussions of the activities and problems encountered by each of them. Comparisons are made between the centers, and such interesting data as the approximate cost of the physical plant, the approximate annual operating cost, total floor space, and the amount of personnel in each is tabulated. The wide difference between the rehabilitation centers described is accounted for by the fact that each is set up to meet the specific needs of the community it serves.

Techniques of Tuberculin Testing and BCG Vaccination. U. S. Department of Health, Education, and Welfare, Public Health Service, Division of Chronic Disease and Tuberculosis of Bureau of State Services. Public Health Service publication no. 182. Paper. 55 cents. Pp. 44, with 19 illustrations. Superintendent of Documents, Government Printing Office, Washington 25, D. C., 1953.

This handy, easily read, loose-leaf manual briefly outlines and illustrates the established techniques of BCG vaccination and tuberculin testing. It is intended as a guide to professional technicians in the application of these procedures and as an aid to planning an efficient program for the use of the vaccine as a partial immunizing agent against tuberculosis in persons particularly vulnerable to exposure. The manual provides concise directions for screening candidates for vaccination as well as precautions in the care of equipment and materials needed for proper conduct of both procedures. It will be highly useful to all clinical and technical personnel of health departments, particularly in those areas where detailed instructions for the procedures have not been adopted by local authorities. The manual is clearly printed, and its cost is commensurate with economical distribution.

Ear, Nose, and Throat Diseases for Medical Students. By William McKenzie, M.B., B.Chir., F.R.C.S., Surgeon, Royal National Throat, Nose and Ear Hospital, London. Cloth. \$5.50. Pp. 260, with 95 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Place, Edinburgh 1, 1953.

The aim of this book is to be interesting rather than exhaustive. The author believes that if it can stimulate the English undergraduate medical student to read a larger book on diseases of the ear, nose, and throat, it will have served its purpose. The book is written in a simple, highly personalized conversational style and contains numerous homely observa-

tions and reflections based on the author's experiences in this special field. "Diseases of the ear, nose, and throat," he asserts, "are common in general practice. The specialty is unpopular with medical students and doctors because of the difficulty with various examinations. These need practice but no great intelligence." And again, "Frequent colds is a fact which I record in the notes, but which I treat with reserve. I have two children myself and know how common coughs and colds are in young children—if a dozen children are invited to a Christmas party we are lucky if eight arrive." American otolaryngologists will not always agree with some of the comments expressed, but by and large this will be due to differences of opinion founded on dissimilar experiences and interpretations of medical events.

Salt and the Heart. By Edward T. Yorke, M.D., Attending Cardiologist, Alexian Brothers Hospital, Elizabeth, N. J. Cloth. \$3.45. Pp. 83, with illustrations. Drapkin Books, 36 East 19th Street, Linden, New Jersey, 1953.

This small volume is written for the laity. It deals with the role of salt in cardiovascular diseases. The author is abreast of the time in his discussion of the value of salt and of the role of salt in high blood pressure and in the failing heart. The last few chapters give an analysis of the salt content of various foods. The book should be of value to persons concerned about the low-sodium diet.

A Handbook for Dissectors. By J. C. Boileau Grant, Professor and Director of Department of Anatomy, University of Toronto, Toronto, Ontario, and H. A. Cates, Professor of Anatomy, University of Toronto. Fourth edition. Cloth. \$3.50. Pp. 425, with 26 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

This excellent book is the product of 17 years of continuous use by the authors in a well-managed dissecting room. The foundation of diagnosis and surgery must be anatomy: He who would repair the machine must trouble to know its parts. The reduction in time available for dissection in the medical course, however, has made good plans and guides increasingly important. Four editions and several reprints of this book are evidence that it has been meeting a need and are evidence of continuous solicitude by the authors and continuous appreciation by other teachers of anatomy. In this edition, experience and, perhaps, the recent development of thoracic surgery have led to rearrangement and amplification of the section on the thorax.

Modern Clinical Psychiatry. By Arthur P. Noyes, M.D., Superintendent, Norristown State Hospital, Norristown, Pennsylvania. Fourth edition. Cloth. \$7. Pp. 609. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; W. B. Saunders Company, Ltd., 7 Grape Street, Shaftesbury Avenue, London, W.C.2, 1953.

This new edition of what is possibly the best general textbook of psychiatry written and published in this country contains many sections that are revised and many that are completely new. There is a greater emphasis in this edition on psychological influences and motivations in the production of personality disorders. The principles of basic psychiatry are presented more fully, and the genetic and dynamic concepts are expanded. Although the author is not a psychoanalyst, he presents many of the most important currently accepted psychoanalytic concepts. The classification of mental disorders that is used is the standard nomenclature adopted by the American Psychiatric Association. An excellent bibliography is included at the end of every chapter. The book should be an invaluable textbook not only to psychiatrists but to physicians in other specialties, medical students, and persons in related fields such as nursing, social work, and psychology.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated.

QUERIES AND MINOR NOTES

DRUG TREATMENT OF PULMONARY TUBERCULOSIS

TO THE EDITOR:—*The chest roentgenogram of a 36-year-old patient shows a questionable tuberculous lesion in the right apex at the right front first interspace. In a 60-year-old patient the roentgenogram shows a partially calcified area in the second left front interspace. They have both been given dihydrostreptomycin for two months. Is it advisable to give isoniazid at the same time other therapy is used? What company makes isoniazid? What further therapy would you suggest in these cases?* M.D., Pennsylvania.

ANSWER:—The inquirer does not ask about the propriety of treating these patients. Since the diagnosis in one was "questionable" and the other had a "calcified area," there is a need for finding tubercle bacilli before launching into a long treatment involving not a few hazards. It is almost mandatory to be sure that an active tuberculous infection is present before good results can be expected.

As to proper method of treatment, streptomycin and dihydrostreptomycin are not given alone any more, since the bacilli soon develop resistance in about 80% of the cases. Until recently *p*-aminosalicylic acid was also given in 3 gm. doses four times a day. Now isoniazid can be given in doses of 3 to 4 mg. per kilogram of body weight in divided doses three to four times a day along with the streptomycin drugs. Isoniazid alone also tends to engender resistance in the bacilli. When given with the other drugs this resistance is about a third of that when the drugs are given alone.

Almost all the drug houses in the world are making isoniazid under their own trade names. Certainly every one of about two dozen drug houses in America is making it. Further therapy should be based on the clinical, x-ray, and laboratory findings in the respective cases. Control work is almost as essential as it is in diabetes. The prognosis under the circumstances cannot very well be given without more information. In addition to control of the bacilli and bacillary resistance, a rest regimen should be carried out for a period, with a gradual increase in exercise as the clinical conditions warrant.

RESORPTION OF EXCESS SUBCUTANEOUS FAT

TO THE EDITOR:—*I would like information on the hastening of resorption of excessive subcutaneous deposits of fatty tissue. Elman has reported the rapid absorption of 5% protein (Amigen) after subcutaneous deposit by clysis, with the aid of hyaluronidase. Shafroff reports similar results with the subcutaneous clysis of 10% fat emulsion, with the aid of the enzyme, without side-effects and without a residue of fat remaining at the clysis site. Elsewhere, methods taken presurgically in vital staining of lymph nodes and channels in cancer surgery demonstrate the clear delineation of such channels by dye plus hyaluronidase. Is it rational to use exercise and manual massage to break down the cellular structure of the fatty deposit, to follow this with injection of the area with the enzyme, and to expect a more rapid absorption of such fat deposits?* M.D., California.

ANSWER:—Two questions have been propounded, one of them dealing with the use of exercise and massage to break down the cellular structure of subcutaneous fat. The answer to this question can be found in a communication by Frank H. Krusen in *THE JOURNAL*, Jan. 24, 1953, page 296. Two quotations may be cited from this communication: "There is

no scientific proof whatever that massage of any type can be effective as a reducing measure," and ". . . the value of nearly all of these devices (for 'spot reducing') is absolutely nil. . . ." In regard to the second question, hyaluronidase is really a spreading agent, and there is little or no evidence that it increases the absorption from the subcutaneous tissues of any fluid except isotonic sodium chloride solution.

INTRAPERITONEAL ADMINISTRATION OF SALINE SOLUTION

TO THE EDITOR:—*When it is difficult in children to give normal saline solution intramuscularly, rapidly, and in sufficient amounts, is it rational to give it intraperitoneally?*

H. E. Dester, M.D., Jagdeeshpur, India.

ANSWER:—Intraperitoneal injection of selected fluids has its advocates and is rational. If large amounts of parenterally administered fluid are desired and other routes are not available, or in the situation cited, isotonic sodium chloride solution is well tolerated intraperitoneally. This route should not be used if abdominal distention, peritonitis, or dyspnea from pneumonia exists, nor within 12 hours of laparotomy. In dehydrated infants and children, from 60 to 100 cc. of isotonic sodium chloride solution per kilogram of body weight may be given in from 15 to 20 minutes and be quickly absorbed, if the contraindications mentioned do not exist.

INTOLERANCE TO IRON THERAPY

TO THE EDITOR:—*Please outline the treatment of patients with anemia who require iron but who manifest various degrees of intolerance. My patient becomes ill, with nervousness, malaise, and irritability, regardless of what type of iron is given or whether it is given orally, intravenously, or subcutaneously.*

Lloyd R. Hennig, M.D., Willows, Calif.

ANSWER:—Inability to tolerate iron is a rare but occasionally encountered problem in the management of iron-deficiency anemia. Ferric cacodylate given intravenously is occasionally tolerated when ingested iron is not. If this has been tried unsuccessfully, it is probably best to resort to the use of a diet high in protein and iron content and to correct, as far as possible, such contributing factors as loss of blood, vitamin deficiency, a deficiency of thyroid secretion, and chronic infection. The diet should contain generous supplies of muscle meat and liver, leafy green vegetables, whole grain cereals, and possibly molasses and raisins. Supplements of amino acids may be desirable.

THE AUSCULTATORY GAP

TO THE EDITOR:—*In Queries and Minor Notes in THE JOURNAL, Aug. 15, 1953, a correspondent, referring to the auscultatory gap in blood pressure readings, stated that he had seen only one case in 25 years. In my experience the phenomenon is extremely common. It is easy to avoid missing it. The upper limit of systolic pressure is first estimated by inflating the cuff with a finger on the radial pulse and is then checked with the stethoscope. In cases in which an auscultatory gap occurs there is no coincident disappearance of the pulse.* John Dardess, M.D., Chatham, N. Y.

CORRECTION

Actinic Dermatitis.—In the query entitled "Actinic Dermatitis," in *THE JOURNAL*, Nov. 28, 1953, page 1232, the term "*p*-aminosalicylic acid" in the fifth line of the answer was erroneous and should have been "*p*-aminobenzoic acid."

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

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PANCREATIC CONSIDERATIONS IN GASTRIC SURGERY

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Gastric surgeons have long been wary of injuries to the pancreas during the mobilization of certain benign and malignant ulcers of the stomach or duodenum. Failure to respect the possibilities of injury to the pancreas under such circumstances is an invitation to disaster. Surgeons are less aware, however, of the occurrence of varying degrees of pancreatitis or fulminating pancreatic necrosis following gastric surgery. Schmieden and Sebening¹ pointed out many years ago that acute pancreatitis as a complication of surgery on organs adjacent to the pancreas was commoner following operations on the stomach than on any other viscera (table 1). The traditional concept that pancreatic affections related to gastric or duodenal surgery were always secondary to trauma cannot, in our opinion,² be sustained by a careful analysis of the pertinent data. Millbourn,³ in an excellent survey of this problem, considered many etiological factors and implied that his own material at least could be fitted into a broad etiological pattern. Pancreatic affections following gastric surgery are unpredictable. They occur in some patients in whom the anatomic relationships are normal, when the technical requirements are routine, and without obvious injury to the pancreas. The experience of Dunphy, Brooks, and Achroyd⁴ is comparable to ours in the respect that these authors could not relate the cause of the pancreatic complications to a rigid etiological pattern.

In addition to injuries to the pancreas and to post-operative pancreatitis after gastric and duodenal surgery, recent interest has been manifest in the role that the pancreas may play in the nutritional status of the patient who has undergone gastrectomy. Pancreatic anomalies occasionally cause gastroduodenal symptoms and confuse the differential diagnostic picture as viewed roentgenographically. It seems pertinent, therefore, to consider in a single communication the problems of pancreatic injury, pancreatic anomalies, acute pancreatitis, and pancreatic physiology as these conditions relate to the nutritional status of the patient who has undergone a gastric operation.

INCIDENCE OF PANCREATIC COMPLICATIONS

Although it would be misleading to imply that pancreatic injuries, acute pancreatitis, or major disturbance in pancreatic physiology are common after gastric resection, it is undoubtedly true that such complications are commoner after gastric surgery than has been realized. Since the diagnosis will be missed, particularly in the mild cases, unless the condition is suspected and specifically searched for, and since the diagnosis will also be missed in many instances unless a postmortem examination is performed in the fatal cases, one may surmise that the reported cases represent but a small percentage of the total incidence. Reliable data in this regard will be available only when a significantly large consecutive group of patients subjected to gastric operations has been studied routinely for disturbances in diastatic activity in the early postoperative state. Usland⁵ and Block⁶ found that only an occasional patient showed elevation of the serum diastase preoperatively even in the presence of ulcers penetrating into the pancreas. Usland found a significant elevation of diastatic activity in the urine postoperatively in 13%, or 24 cases, of gastric resections for ulcer. Millbourn emphasized that elevation of the urinary diastase was four times as common after gastric resection for duodenal ulcer as for gastric ulcer or carcinoma. We have recognized seven cases of acute pancreatic necrosis complicating gastric surgery during the four year period from 1949 through 1952. During that time there were 499 gastric resections performed for duodenal ulcer, 203 for gastric ulcer, and 190 for carcinoma of the stomach, indicating that the recognized incidence of this complication is uncommon. It is significant, however, that pancreatic affections constituted one of the commonest causes of death after gastric operations during that interval. This observation implies that, as other serious complications that historically accounted for the major part of the mortality of gastric surgery have gradually been reduced or eliminated, the prevention and control of pancreatic affections related to gastric surgery constitute one of the most serious hazards with which we currently must contend.

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ously, but the jejunal fistula required secondary resection. In the third case in which pancreatic injury occurred at the clinic, both the common bile duct and the duct of Wirsung were divided during the mobilization of a low-lying posterior penetrating duodenal ulcer. This injury was recognized immediately and the type of repair employed has been previously reported by Lahey.⁹ In the three cases of pancreatic injury in operations performed elsewhere the duct of Wirsung alone was divided in one instance and in the other two patients the duct of Wirsung and the common bile duct were both divided. We have, of course, observed injuries to the tail of the pancreas during total gastrectomy. These injuries occur during the mobilization and removal of the spleen. Such injuries are usually minor as compared with injuries to the pancreatic duct near the papillae, but occasionally they may invite a temporary fistula or, more commonly, a subphrenic abscess.

MANAGEMENT OF MAJOR INJURIES TO DUCT

Injuries to the duct of Wirsung in the region of the head or the tail of pancreas can be dealt with satisfactorily in most instances. In the presence of malignant

formed pancreas, the pancreatic fistula was permitted to close spontaneously. In the remaining cases the following types of repair were performed. The patient with division of the duct of Wirsung without involvement of the common bile duct had the duct of Wirsung anastomosed to the duodenal stump five months after the initial operation performed elsewhere. In one instance the divided end of the common duct was sutured to the duct of Santorini and a cholecystojejunostomy was performed. One patient had had a cholecystojejunostomy elsewhere that relieved the biliary fistula, but the persistent pancreatic fistula arising from the transected duct of Wirsung was treated by anastomosing the duct to the duodenal stump. In one instance in which both the common bile and the main pancreatic ducts had been divided elsewhere, repair was effected by implanting each duct into the mobilized duodenum. In one case in which injury to the common bile and main pancreatic ducts was recognized immediately, repair was accomplished by implantation of the ducts into the jejunum.

Attempts to eliminate persistent pancreatic fistula, resulting from complete division of the duct of Wirsung near the ampulla, by cauterization, x-radiation, and

TABLE 2.—Pancreatic Injury During Gastrectomy

Case	Age, Yr.	Diagnosis	Nature of Injury	Place of Original Operation	Type of Reconstruction	Results and Length of Follow-Up
1	40	Duodenal ulcer	Division of common bile and main pancreatic ducts	Clinic	Implantation of ducts into jejunum	Excellent; 9 yr.
2	66	Duodenal ulcer perforating into common bile duct	Division of common bile and duct of Santorini	Clinic	End of common duct sutured to duct of Santorini; cholecystojejunostomy	Excellent; 6 yr.
3	52	Duodenal ulcer	Division of duct of Wirsung	Elsewhere	Duct anastomosed to duodenal stump 5 months after initial operation	Excellent; 4 yr.
4	25	Duodenal ulcer	Division of duct of Wirsung and common bile duct	Elsewhere	Both ducts implanted into mobilized duodenum	Excellent; 2 yr.
5	46	Duodenal ulcer	Division of common bile and pancreatic ducts	Elsewhere	Cholecystojejunostomy elsewhere; pancreatic fistula persisted; duct of Wirsung anastomosed to duodenum	Excellent; 4 mo.
6	37	Duodenal ulcer, annular pancreas	Division of minor pancreatic duct during excision of annulus	Clinic	Pancreatic fistula closed spontaneously; jejunal fistula resected	Excellent; 1 yr.

lesions that involve the pancreas secondarily, injuries to the major duct in the body or the tail of the gland are best treated by distal pancreatectomy and by careful closure of the stump of the pancreas with silk mattress sutures. Injuries to the periampullary portions of the pancreatic ducts can be extremely serious, and their proper management requires more judgment, skill, and ingenuity. Millbourn has stressed the necessity of demonstrating a functional connection between the duct of Santorini and the main pancreatic duct if division of the duct of Santorini is to be treated by simple ligation. This may be done, as he suggested, by injecting a colored solution into the severed end of the duct and watching for the return of the solution into the duodenum through the papillae of Vater, or pancreato-angiography may be preferred. If the duct of Santorini does not communicate with the duct of Wirsung it will be necessary to implant the duct of Santorini into the duodenum or jejunum. Injuries to the duct of Wirsung within the head of the pancreas will usually be associated with injuries to the common bile duct and will require implantation of each duct into the duodenum or jejunum. At the clinic in one case in which a pancreatic fistula followed excision of the annular portion of a mal-

sclerosing solutions not only will fail but may actually do further harm to the pancreas. Implantation of the fistulous tract into segments of the upper gastrointestinal tract will also fail in most instances because of secondary stricture of the fistulous tract. The necessary requirement for a satisfactory result is careful approximation of the duct itself to the duodenum or jejunum. This can be accomplished by following the fistulous tract down to the pancreas and then by identifying precisely the epithelial lining of the pancreatic duct.

RESULTS OF REPAIR OF INJURY TO DUCTS

In the five patients who have had repair of pancreatic ducts following injury resulting from gastroduodenal surgery the results have been excellent in terms of eliminating pancreatic fistula and also in terms of preventing secondary stenosis and interference with pancreatic function. One patient, case 2 in table 2, who had an injury to the duct of Santorini did have a spontaneous recurrence of a pancreatic fistula 18 months later, following prolonged excessive consumption of alcohol. The patient was brought to the hospital and placed on a careful dietary routine, the fistula closed completely, and the pa-

tient has remained well and has followed his dietary restrictions carefully. One patient, case 1 in table 2, has had some recurrent gastrointestinal symptoms nine years after the implantation of the common bile and main pancreatic ducts into the jejunum, and it is possible that he may have a jejunal ulcer, although this cannot be definitely proved.

The real tragedies resulting from injuries to the major pancreatic ducts during gastric surgery derive from failure to recognize and to correct these injuries rather than from their irreparable character. The *sine qua non* of successful management of injuries to the major pancreatic ducts, whether they be repaired immediately or after a persistent fistula has occurred, is careful approximation of the severed duct to some segment of the upper gastrointestinal tract. The epithelium of the duct must be sutured carefully to the mucosa of the intestinal tract.

ACUTE PANCREATITIS FOLLOWING GASTRIC RESECTION

In attempting to discern some common etiological factor or factors in the production of acute pancreatitis following gastric surgery we have selected seven cases from

was done. Although there had been no surgical manipulation of the duodenum, extensive pancreatic necrosis developed from which the patient died on the ninth postoperative day. Postmortem examination revealed diffuse pancreatic necrosis and an active penetrating duodenal ulcer in the first part of the duodenum. In another instance the mobilization of the ulcer was not particularly difficult and there was much less pancreatic involvement than is frequently seen in such cases at the time of operation, yet fatal pancreatitis ensued. In one case the operation was performed for an obstructing duodenal ulcer in which no penetration was found. The technical procedure in this instance was not involved, and no undue manipulation of the pancreas was required (case 2, table 3). The pancreatic necrosis was extensive in this instance and resulted in death on the ninth postoperative day. These facts are in harmony with those previously referred to in the literature, which indicate that this complication may occur even after simple gastroenterostomy. Finally, case 7 in table 3 demonstrates that acute pancreatitis may occur following gastrectomy (total gas-

TABLE 3.—Acute Pancreatitis Following Gastric Resection

Case	Age, Yr.	Diagnosis	Operation	Time of Onset of Postoperative Symptoms	Result	Results of Post Mortem
1	36	Penetrating duodenal ulcer; repeated hemorrhages; duodenum not manipulated	Reresection; patient had previous resection elsewhere	2d day	Died 9th day	Extensive pancreatic necrosis
2	48	Obstructing duodenal ulcer; previous hemorrhage	Partial gastrectomy	24 hr.	Died 9th day	Extensive pancreatic necrosis
3	35	Nonpenetrating ulcer	Partial gastrectomy	24 hr.	Died 28th day	Extensive pancreatic necrosis
4	50	Penetrating duodenal ulcer	Partial gastrectomy	24 hr.	Died 5th day	Marked pancreatic necrosis in head; duct of Wirsung drained only small part of head of pancreas; duct of Santorini not identified but apparently was main pancreatic duct
5	44	Penetrating duodenal ulcer	Partial gastrectomy	24 hr.; then subsided; recurred 19th p. o. day	Died 19th day	Massive diffuse pancreatic necrosis
6	52	Penetrating duodenal ulcer	Partial gastrectomy	24 hr.	Died 9th day	Pancreatic necrosis
7	65	Carcinoma of cardia	Total gastrectomy; splenectomy	24 hr.	Recovered; permanent diabetic	

the files of the Lahey Clinic in which the diagnosis of pancreatic necrosis was obvious. In addition to these cases we have observed other instances of less severe involvement in which recovery occurred, but these seven cases point up the main problems referable to this complication and constitute some revealing as well as some confusing clinical data. It will be noted that four of the seven patients (table 3) had penetrating duodenal ulcers, and one had carcinoma involving the cardia. Although this factor of penetration might at first appear decisive, it must be borne in mind that most duodenal ulcers that are resected at the clinic are posterior penetrating ulcers and that the incidence of this complication is quite small. Another observation that questions the importance of this factor of penetration in the etiology of pancreatitis following gastrectomy is demonstrable by case 1, table 3, in which instance a previous gastric resection had been performed elsewhere and the patient was operated on again here because of repeated hemorrhage. At the second operation the duodenal stump was examined but not manipulated, but, since the patient had had a limited resection at the original operation, a more radical resection

trectomy in this instance), even when the malignant lesion does not directly involve the pancreatic substance. It is possible, of course, that such pancreatic involvement may be secondary to injury of the tail of the pancreas resulting from mobilization of the spleen, but in this instance the clinical course was suggestive of pancreatic necrosis rather than of pancreatic extravasation, and this presumption is supported by the fact that acute diabetes developed during the attack and that the diabetes was permanent. Another significant and confusing factor in attempting to specify the cause of these complications is the demonstration that the areas of pancreatic necrosis are not necessarily confined to the head, and, indeed, areas of pancreatic necrosis may occur in the body or tail of the gland when the head of the pancreas appears normal.

Recognition.—Our initial interest in this subject resulted from the observation that an occasional complication following gastric surgery had the clinical appearance of acute pancreatic necrosis. Subsequent events confirmed this suspicion. The most characteristic clinical feature of these patients with severe pancreatic necrosis

following gastric resection is the violence of the onset of abdominal symptoms in the immediate postoperative period. It may be observed in table 3 that the symptoms of pancreatic complications appeared in six of the seven cases within 24 hours after the operation and that in the seventh case the postoperative symptoms were apparent in 48 hours. The violence of the abdominal pain, the reference to the back, its persistent, unyielding quality, and its tendency to be associated with peripheral vascular collapse are extremely suggestive and should afford recognition of this complication. The demonstration of tenderness in the flanks and the subsequent appearance of edema in the flanks, and in some instances of Grey-Turner's sign, will confirm the diagnosis. The appearance of jaundice, which occurs in about 75% of these patients, may be due to obstruction of the bile duct by swelling and induration of the head of the pancreas or to a toxic hepatitis.

To suspect the pancreatic complication is to recognize it, because significant elevation of serum or urinary amylase can always be demonstrated if the determination is made within 24 to 48 hours after onset of the symptoms. Because of our particular interest in this problem, it is routine at the clinic to regard almost every case of intra-abdominal complication in the period immediately following gastric surgery to be of pancreatic origin until proved otherwise.

Secondary operations were performed in two cases. In one instance bilateral incisions were made and drainage of the retroperitoneal space was performed through the separate incisions in each flank. Considerable necrotic debris was evacuated, but the patient died on the 28th postoperative day. In another instance the patient showed initial signs of pancreatic involvement that subsided but recurred violently on the 19th day, at which time a small incision was made in the right upper abdominal quadrant. Considerable hemorrhagic fluid was obtained, but the patient went into profound collapse and died within a short time. Autopsy revealed massive, diffuse pancreatic necrosis.

The mortality in this selected group was extremely high, there being six deaths in the seven cases (85.7%), but these cases were selected because of the extreme degree of the complication and because the diagnosis could be substantiated in every instance.

The autopsy findings were fairly consistent in five of the six fatal cases in which postmortem examination was permitted. In one case (case 4, table 3) marked pancreatic necrosis was present in the head of the gland. The duct of Wirsung drained only a small portion of the head of the pancreas, while the duct of Santorini, which was not identified, apparently constituted the main pancreatic duct. This may be an instance in which fatal pancreatitis resulted from injury to the duct of Santorini, although no such injury was demonstrable at post mortem. The other four patients showed severe pancreatic necrosis, and in one instance the areas of necrosis were patchy, with the body and tail being more involved than the head.

Treatment.—Prevention of pancreatic inflammation and necrosis following gastric resection may be difficult in view of the fact that the precise cause is not known. It is plausible, however, to assume that the large, penetrat-

ing, acutely inflamed, posterior duodenal ulcer is more likely to invite a pancreatic complication than are other types of duodenal ulcers. It is wise, therefore, to evaluate carefully and precisely the possibilities of injury to the pancreas and to consider the likelihood of pancreatic inflammation following resection of such an ulcer before mobilization of the stomach is attempted. When faced with such an ulcer one has the alternatives of performing: (1) a pyloric exclusion as advocated by Finsterer,¹⁰ (2) the two stage resection as advocated by McKittrick and his associates,¹¹ which in their hands has proved to be safer in this type of ulcer than has been the one stage operation, and (3) gastroenterostomy and vagotomy. Pyloric exclusion in our experience has given the highest incidence of recurrent ulcer activity and is rarely employed in this clinic. The objections to the two stage resection advocated by McKittrick include the double jeopardy of two anesthetics, two operative maneuvers, and two periods of recumbency and the possibility that the patient will be left with an inadequate operation if he refuses to go through the second stage.

It is a general principle here at the clinic to perform partial gastric resection in practically all cases of duodenal or gastric ulcers subjected to surgery. In most of these instances the ulcer is completely removed. In some instances, however, when the ulcer is low-lying, it is possible to remove the entire stomach and pylorus and to invert the first part of the duodenum above the ulcer. This leaves very few cases in which one of these three alternatives must be employed, and it is our belief at present that, when one is faced with the possibility of pancreatic injury or an invitation to pancreatic inflammation in the acutely inflamed posterior duodenal ulcer, it is preferable to do a gastroenterostomy and vagotomy. If resection is resorted to, the mobilization of the duodenum must be done with care. The penetration into the pancreas should not be excised, covered, or curetted. Any large structure traversing the groove between the head of the pancreas and the posterior wall of the duodenum should be aspirated to rule out the possibility that it is the pancreatic duct before clamps are applied. It is difficult for anyone to speak with authority relative to the treatment of postoperative pancreatitis for, by necessity, one's experience is limited, and if we may judge by the meager literature relative to this affection following major surgery, the mortality in series of proved cases is universally high. There is little doubt, however, that the treatment should be similar to that of primary pancreatitis, which today is generally agreed to be conservative nonoperative management. One is struck by the fact that those patients who have secondary laparotomy usually pursue a rapidly fatal course. This management should include: (1) continuous gastric suction to minimize distention; (2) control of pain by meperidine (Demerol) in milder cases and by continuous epidural procaine analgesia (Orr and Warren¹²) in those instances in which the pain is unresponsive to administration of narcotics; (3) maintenance of circulating blood volume by adequate amounts of serum albumin and appropriate quantities of glucose-electrolyte solutions; (4) detection and control of acute diabetes and hypocalcemia; (5) use of penicillin and/or chlortetracycline (Aureomycin); and (6) drainage of secondary septic

collections. If one feels compelled to attempt drainage of the pancreatic bed during the acute attack, one would do well to consider the unilateral or bilateral flank approach, particularly in those instances in which brawny induration and edema are demonstrable in these areas. The lumbar approach can be pursued with less anesthesia and without any intraperitoneal manipulation.

RELATIONSHIP OF PANCREATIC ANOMALIES
TO GASTRODUODENAL SURGERY

Aberrant pancreatic tissue located in the wall of the stomach or duodenum assumes practical clinical significance since these ectopic pancreatic masses may produce motor disturbances, ulceration, or secondary inflammatory reactions, and more particularly because their presence will frequently produce filling defects that are confused with gastric or duodenal polyps, ulcers, or malignant tumors. Since these pancreatic heterotopias are prone to occur in or around the pylorus, it is fre-

the ectopic mass had a central depression, representing the ductal opening into the stomach, which was thought at the time of abdominal exploration to be central necrosis in a gastric tumor. In two of the seven cases the aberrant pancreatic tissue was found incidentally at the time of operation for gastric ulcer. Gastric resection was performed in six of the seven cases, since frank ulceration was present in four and associated gastritis was present in two.

ANNULAR PANCREAS

Annular pancreas is a rare anatomic anomaly, but the frequency with which its presence is associated with secondary duodenal ulceration, particularly in the adult, and the infrequency with which the correct diagnosis is made either clinically or during abdominal exploration for suspected gastroduodenal disease point up the need for greater awareness of the clinical, roentgenologic, and surgical features of this malformation. The symptoms

TABLE 4.—Treatment of Aberrant Pancreas in Stomach or Duodenum*†

Case	Age, Yr.	Sex	Associated Pathological Condition	Duration of Symptoms	Operation	Location
1	26	M	None	4 yr.	Local excision	Pylorus
2	54	M	Chronic gastritis	20 yr.	Gastric resection	Antrum
3	39	M	Ulceration over tumor	5 mo.	Gastric resection	Prepyloric area
4	48	M	Associated gastric ulcer	3 yr.	Gastric resection	Pylorus
5	55	M	Multiple gastric ulcers	5 yr.	Gastric resection	Pylorus
6	26	F	Ulceration over tumor	3 yr.	Gastric resection	Duodenum
7	42	M	Antral gastritis	6 mo.	Gastric resection	Duodenum

* There were no complications in any of these patients, and the operative results were excellent in all.
† After Marshall and Curtiss.¹³

TABLE 5.—Treatment of Annular Pancreas*

Case	Age, Yr.	Sex	Duration of Symptoms, Yr.	Operation	Complications	Results
1	37	M	18	Excision of annulus; partial gastrectomy	Pancreatic and jejunal fistula	Closure jejunal fistula; pancreatic fistula closed spontaneously
2	28	F	12	Pyloric exclusion (elsewhere); excision of antrum and first portion of duodenum	Pancreatic deficiency	Chronic malnutrition
3	41	F	15	Gastroenterostomy and vagotomy	None	Excellent

* In all three cases there was an associated duodenal ulcer.

quently necessary to operate on them, since the possibility of an existing malignant lesion cannot, with assurance, be ruled out. Ulceration with hemorrhage or pyloric obstruction also may indicate the necessity for surgical intervention. It is important, therefore, to consider the possibility of an ectopic pancreas in assessing any bizarre roentgen manifestation or operative finding in the region of the pylorus. If such an anomaly is suspected, the tumor should be excised locally, if feasible, and be submitted to immediate frozen section analysis.

Marshall and Curtiss¹³ have recently reported from this clinic seven instances of ectopic pancreas, five involving the stomach and two in which the aberrant pancreas was attached to the duodenum, which were associated with sufficient symptoms to warrant surgery. These cases are tabulated in table 4, from which it will be seen that in five of the seven cases the aberrant pancreas was the primary gastric disease and that superficial ulceration over the tumor was present in two of these five cases. Two other patients had local gastritis in the region of the pancreatic mass. In the fifth instance

vary in proportion to the degree of duodenal obstruction produced by the anomaly. If no compression of the duodenum is present there are no symptoms. Clinical manifestations include bouts of abdominal colic associated with nausea and vomiting. Failure to discern the correct diagnosis frequently leads to unnecessary and unavailing operations on the biliary tract and ultimately to a diagnosis of psychoneurosis.

When symptoms are present from birth, which usually indicates the presence of severe duodenal obstruction, early surgical intervention is carried out and the nature of the anomaly is usually recognized. When the symptoms are delayed and when they are less acute, chronic duodenal stasis may occur and lead to duodenal ulceration. Roentgen studies under such circumstances usually show the ulcer, but the primary pancreatic deformity is commonly missed. The deformity is generally characterized by a smooth band-like constriction of the descending limb of the duodenum, with dilatation of the proximal duodenal segment. Occasionally, a fine string of barium delineates the narrowed portion of the duo-

denum. Medial notching of the duodenal deformity, as stressed by Lehman,¹⁴ who is the only one who has recognized the lesion preoperatively, has not been observed by us.

We have operated on three patients with annular pancreas (table 5). All three were adults; symptoms had been present for 12, 15, and 18 years. Two patients had been operated on previously without the true nature of the pathological condition being perceived. One had had a cholecystectomy for noncalculous gallbladder, and one had had a pyloric exclusion. All three had duodenal ulceration.

Gastrojejunostomy and vagotomy were performed in one case, with good results. The retained pyloric antrum was excised in the patient who had had a previous exclusion operation. This patient had chronic pancreatic deficiency with severe malnutrition. The annulus was excised and a partial gastrectomy was performed in one patient. Pancreatic and jejunal fistula occurred. The pancreatic fistula healed spontaneously, but the jejunal fistula required operative closure. This patient subsequently did well.

The treatment of choice in annular pancreas in the absence of chronic duodenitis or duodenal ulcer is duodenojejunostomy. If the first part of the duodenum is scarred or ulcerated, it is perhaps wise to employ gastrojejunostomy with vagotomy. The annulus should not be resected, in my opinion, because of the likelihood of a pancreatic fistula, the possibility of injury to the major pancreatic duct, and because resection of the annulus may not relieve the duodenal atresia that is associated.

ROLE OF PANCREAS IN POSTGASTRECTOMY NUTRITIONAL PROBLEMS

Some impairment in the digestion and absorption of food after gastroenterostomy, partial gastrectomy, or total gastrectomy is frequently observed. This deficiency may be reflected in a failure to regain normal weight, difficulty in maintaining postoperative weight, and the presence of excessive quantities of fat and, less commonly, protein in the stools. Factors contributing to this impairment of nutrition include: (1) diminution in intake of food; (2) the entrance of larger food particles into the intestine, which makes it more difficult for the bile and the pancreatic and intestinal ferments to act on the food substances; (3) more rapid passage of food through the gastrointestinal tract; and (4) a diminution in external pancreatic secretion. This last impairment is usually least marked in gastroenterostomy and most profound following total gastrectomy. Despite the voluminous literature relative to the difficulties in maintaining nutrition in the patient who has undergone gastrectomy and especially in the patient who has been subjected to total gastrectomy, it has been our experience at the clinic that very little difficulty will be encountered in the patient who has had gastroenterostomy, with or without vagotomy, or partial gastrectomy and that the difficulties that are encountered in patients who have had total gastrectomy are rarely extreme except in those patients who have recurrent or persistent malignant disease.

Wollaeger¹⁵ found that after partial gastrectomy in man fat absorption was slightly better when the Billroth 1 type of anastomosis was done, as compared with a Polya type of restoration. After total gastrectomy in dogs Everson¹⁶ found that the type of anastomosis had little or no effect on absorption of fat but that, in animals in which an esophagoduodenal anastomosis was performed, the loss of nitrogen in the feces was less than in those dogs that had esophagojejunal anastomosis. It can readily be demonstrated, as shown by Howard and his associates,¹⁷ that the rate of external pancreatic secretion is diminished when a test meal is delivered to the jejunum approximately 2 ft. (61 cm.) beyond Treitz's muscle as compared with the delivery of the same test meal into the duodenum or given orally. In most of the conventional types of gastrojejunostomy following gastric resection, however, the gastrojejunostomy is sufficiently close to Treitz's muscle to permit reflux of food into the duodenum in such a way as not to impair pancreatic function.

A variety of agents has been employed in an effort to increase the absorption of fat after gastrectomy. These include bile, pancreatin, emulsifiers, hydrochloric acid, and vitamins, particularly folic acid. Emery¹⁸ has shown in dogs, as have Brain and Stammers¹⁹ in man, that fat absorption can best be increased after total gastric resection by the use of small, frequent feedings.

These experiences parallel those of persons in our own department of gastroenterology, who have for many years insisted that most nutritional problems following partial or total gastrectomy can be controlled by small, frequent feedings of carefully selected articles of diet. The validity of this contention is best exemplified by the fact that of 15 patients subjected to total gastrectomy for benign lesions only one has presented any significant nutritional problem. This one patient has had difficulty in maintaining his weight, although his blood cell counts are normal and his energy is such that he is able to work regularly even though he is beyond 70 years of age. We have also demonstrated in this patient that by careful, frequent feedings under hospital control he is able to gain as much as 5 lb. (2.3 kg.) in three weeks. In the light of a large experience with both partial and total gastric resection here at the clinic, we believe that the problem of postoperative nutrition in this group is not essentially one of major impairment in digestion or absorption of food and that such nutritional problems can largely be avoided by determining that the patients get an adequate caloric intake. This usually means frequent small meals in those persons who tend to have any nutritional deficiency. Again, in the light of this experience, we have not been tempted to resort to the Billroth 1 type of procedure nor have we felt constrained to employ any transposition of a segment of the gastrointestinal tract as an artificial stomach after total gastrectomy. Although it is undoubtedly true that minor disturbances in pancreatic function occur as a result of radical subtotal or total gastric resection, these deficiencies apparently do not occur commonly and when they do are not severe.

NUTRITION AFTER GASTRIC OPERATIONS

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A significant number of gastric operations result in rather distressing postoperative complaints that are unrelated to the original pathology and probably are referable to the surgical procedure.¹ Although the loss of a part or all of the stomach may seem a small price to pay to avoid the consequences of recurrent ulcer or fatal neoplasm, a significant number of patients manifest subsequent nutritional deficiencies that may be severe enough to prove incapacitating to the occasional patient.² During the past three and one-half years a study has been undertaken in an attempt to gain further information regarding the incidence, etiology, management, and possibly the prevention of nutritional problems following gastric surgery.

Physicians responsible for the late postoperative care of patients with gastric surgery have long been impressed by the problems they present. Diminished appetite, limited food capacity, frequent discomfort after meals, high incidence of food idiosyncrasy, and occasional diarrhea may result in a significant weight loss or the inability to gain weight.³ At times these sequelae prevent these patients from making adequate social and economic adjustments.⁴ Observations on the postoperative nutritional status of 203 unselected ulcer patients subjected to a variety of standard surgical procedures suggest that preoperative weight should be an important consideration in planning the type of gastric surgery, especially for duodenal ulcer.

INCIDENCE OF WEIGHT DEFICIENCIES

The nutritional status of the group studied one to six years after gastric surgery has been determined by examination and interviews. Three out of every four have been seen more than once; of these, one-half have been interviewed at yearly intervals for at least three years.

The youngest patient reported on was 20 years old and the eldest was 75; the average age was 52 years. There were 162 men and 41 women. The operative and/or pathological diagnosis was duodenal ulcer in 163 cases. In the remainder, there were 27 cases of benign gastric ulcer, 10 of gastrojejunal ulcer, and 3 of duodenal and gastric ulcers occurring together. For purposes of simplicity, those patients with marginal ulcerations or combined duodenal and gastric lesions were classified in the duodenal ulcer group, giving a total of 176.

Records of weight gain or loss one to six years following operation were used as an index of the state of nutrition. Over one-half, or 109 of the 203 patients, failed to regain their preoperative weight; furthermore, a total of only 16 patients reached their maximum preoperative weight.

Of more significance is that the postoperative body weight was found to be below the minimal ideal standards⁵ for the sex, age, height, and body build in 127 of the total cases (table 1). In some instances, this weight deficit was considerable and exceeded 10% of

the minimal ideal weight in nearly one out of every three patients. The minimal ideal weight is 5 lb. (2.3 kg.) less than the average as defined by insurance weight tables.⁵ For example, the average ideal weight for a 5 ft., 8 in. (170 cm.) 40-year-old man of medium build is 152 lb. (69.1 kg.), and his minimal ideal weight is 147 lb. (66.8 kg.). From a consideration of this data it is apparent that the majority of these patients postoperatively were on the lean side, since the weight of 62% of the total group fell below minimal ideal standards.

POSTOPERATIVE WEIGHT TRENDS IN DUODENAL ULCER PATIENTS

Subtotal gastric resections were performed in 132 of the 176 duodenal ulcer patients; the Hofmeister-Polya technique was used in 101, and, of these, 27 had the additional procedure of vagotomy (table 2). The remaining 31 resections were of the Billroth 1 type combined with vagotomy. The resection in the Hofmeister-Polya group was of the conventional 75% type, with division of the left gastric artery close to its origin. When vagotomy was added to this type of procedure, the amount of resection remained at 75% in 18 of the 27 and was decreased to 40% in the remaining nine. In the Billroth 1 and vagotomy group, resection averaged between 60 and 65%. Vagotomy with gastroenterostomy accounted for the remaining 44 duodenal ulcer patients.

The body weight at follow-up examination was found below the minimal ideal in almost two-thirds (62%) of this group of 176 (table 1). This weight deficit was considerable in nearly one out of every four patients, exceeding 10% of the minimal ideal weight. Further analysis of these deficits demonstrated definite relationships to the type of operation performed.

About two-thirds of the patients having Hofmeister-Polya type resections with or without vagotomy failed to attain their minimal ideal weight after operation (table 1). Considerable improvement was noted in the vagotomy-gastroenterostomy series, in which 40% failed

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to meet the minimal weight standards; and the best nutrition was found in the Billroth 1 combined with vagotomy group, in which only 33% fell short of the minimal weight standards.

An analysis was then carried out to determine whether or not the nutritional trends following gastric surgery might have been foretold by a consideration of the weight status before operation. As a result of this analysis, the patients fell into three major categories, depending on their weight at the time of operation and the relationship of this weight to the calculated minimal ideal standard. Group 1 included those patients whose preoperative weight was ideal or above; group 2 those who had realized their ideal weight sometime in the past, but whose weight at the time of operation was

TABLE 1.—Postoperative Procedures and Weight Trends of Patients Subjected to Gastric Surgery

Procedure	No. of Cases	Average Time After Surgery, Mo.	Follow-Up Weight Below Ideal, Lb.	No. with Ideal Weight Defect Greater Than 10%
Duodenal Ulcer				
Subtotal gastrectomy				
Hofmeister-Polya with vagotomy	27	27	17 (66%)	5 (18%)
Hofmeister-Polya	74	31	48 (64%)	33 (44%)
Billroth 1 with vagotomy..	31	16	10 (33%)	8 (25%)
Vagotomy with gastroenterostomy	44	36	18 (40%)	7 (15%)
	176	..	93 (52%)	53 (32%)
Gastric Ulcer				
Subtotal resection	27	31	22 (81%)	10 (33%)
Total	203	..	125 (62%)	63 (21%)

TABLE 2.—Reasons Given by Patients for Low Calory Intake

Operation	Appetite Fair to Poor	Discomfort After Meals			
		Fullness	Diarrhea	Need to Lie Down	Total
Gastric resection					
Hofmeister-Polya	33.0%	24.0%	15.8%	23.0%	44.0%
Hofmeister-Polya with vagotomy	15.0%	24.0%	14.0%	6.6%	41.0%
Billroth 1 with vagotomy	17.0%	13.0%	13.3%	29.0%	29.0%
Vagotomy with gastroenterostomy	36.0%	23.0%	13.0%	10.0%	33.0%

below their minimal standard; and finally, group 3, those who had never realized their ideal weight.

Thirty-one of the 74 patients studied after subtotal Hofmeister-Polya resections for duodenal ulcer were at their ideal weight or above (group 1) at the time of operation, and 21 of these were still above their minimal standard at follow-up—a two out of three chance of maintaining satisfactory nutrition. In direct contrast to this relatively good nutritional prognosis, only 3 of the 27 patients who fell into group 2 have been able to realize their ideal weight following operation—a one in 10 chance of meeting minimal weight standards. Finally, as might have been predicted, none of the 16 patients in group 3 realized their minimal ideal weight following gastric resection.

Similar observations were then made for each of the remaining surgical procedures employed, namely, major and minor Hofmeister-Polya resections with vagotomy, Billroth 1 resection with vagotomy, and vagotomy with gastroenterostomy. In each instance, the patients were

classified into three groups according to their preoperative nutritional status, and the percentage of patients reaching their minimal ideal weight was again determined. A comparison of the percentage of patients realizing this minimal standard following the various surgical procedures according to the preoperative nutritional category (groups 1, 2, and 3) permits a rough estimate of the long-term nutritional effects of the various gastric operations for ulcer.

In group 1 "best nutrition," as determined by the percentage of patients maintaining their ideal weight after operation, was noted following the 60% Billroth 1 resection with vagotomy. The number of patients maintaining their ideal weight following a limited 40% resection (Hofmeister-Polya technique) with vagotomy and following vagotomy with gastroenterostomy paralleled the incidence previously noted for the more extensive Hofmeister resection and averaged two out of three patients. In those few cases in which vagus section was combined with a 75% Hofmeister-Polya resection, only one out of six patients was able to maintain his ideal weight.

The improved nutrition following the Billroth 1 resection and vagotomy may not be of significance because of the small number of patients. The impression is gained that satisfactory weight trends may be expected in about two-thirds of those patients at or above their ideal weight at the time of operation regardless of the operative procedure if extensive resection of the Billroth 2 type combined with vagotomy is avoided.

The procedure of choice in group 2 was vagotomy combined with a 60% Billroth 1 resection or with posterior gastroenterostomy. Once again the best weight trends were realized following gastroduodenostomy, although the percentage difference was not great. Furthermore, the end results might well change with a larger number of cases and a more prolonged follow-up. Continued weight loss or inability to gain sufficient weight to meet minimal standards proved to be an almost universal problem following the more extensive resections either with or without vagotomy.

Sixteen of the 80 patients in group 2 fell below their ideal weight as a result of long-standing pyloric obstruction. Although we anticipated a good weight response in this particular group, only 10 had gained weight since the operation and, of these, only four had been able to meet their ideal weight. This tendency of a failure to gain weight in those patients with pyloric obstruction prior to surgery held true throughout the entire series in every group classification.

The nutritional effects of the various operative procedures in those patients who had never realized their minimal ideal weight preoperatively (group 3) were evaluated on the basis of the number of patients gaining weight after operation. In this instance, three out of four patients gained some weight following vagotomy combined with either gastroenterostomy or a 60% Billroth 1 resection, although "best nutrition," as indicated by the greatest average weight gain, occurred after vagotomy and gastroenterostomy. However, not a single patient in group 3 ever reached the minimal ideal weight following any type of procedure. Obviously a conservative type of operation seems clearly indicated in this group.

In summary, the preoperative weight of 65 of 176 patients with duodenal ulcer was equal to or over the minimal ideal weight (group 1), and of these, 43 were still above their ideal weight one to six years following operation. In contrast, only 23 of the 80 patients in group 2 and none of the remaining 31 patients in group 3 were able to reach their minimal standard weight following surgery.

POSTOPERATIVE WEIGHT TRENDS IN BENIGN GASTRIC ULCER PATIENTS

Twenty-two of 27 patients with benign gastric ulcer underwent radical gastric resections, and eight of these procedures were described as near-total resections. Intestinal continuity was established by gastrojejunostomy in 17 instances. The Billroth 1 technique was employed in the remaining 10 patients. No attempt was made to compare the end results of the three types of resection for this small series.

Weight trends following gastrectomy for gastric ulcer paralleled those of the entire group; however, the deficits were of greater magnitude. Seventeen of the 27 patients had lost weight since surgery, 22 were below their minimal ideal weight, and this deficit exceeded 10% in one out of every three patients. Decreased appetite, fullness, or discomfort after eating was noted in 15 patients, and it was these patients who had lost the greatest amount of weight. This increased weight loss and the frequency and severity of symptoms after meals is most likely explained on the amount of stomach removed.⁶ Unlike the situation in duodenal ulcer, the preoperative weight factor cannot be considered in planning the type of surgery, since the danger of malignancy makes radical resection necessary.⁷

COMMENT

A study of the postoperative weight trends in 203 patients one to six years after operation has appeared to show a definite relationship to their preoperative nutritional status. In our experience those patients whose preoperative weight was equal to or above their ideal weight showed the most consistent tendency to maintain a satisfactory weight after surgery. Slightly more than two-thirds of the patients in this group sustained a satisfactory postoperative weight regardless of whether a conservative procedure or a radical gastrectomy was performed. Seventy-four patients (36.4%) of the total series fell into this category.

In contrast to this satisfactory situation, the postoperative weight trends in the remainder of the patients in general were disappointing. The second group was made up of those who at the time of surgery were below ideal weights but who previously had weighed as much or more than ideal standards. In this group, composed of 94 patients, the number of patients who regained an ideal weight was reduced to slightly more than a third. It was here that the beneficial effect of the more conservative procedures became apparent (table 3).

Finally, in the third group, including those patients who had never attained their ideal weight, not a single patient attained this minimal ideal standard weight postoperatively. In this group were 35 patients, or 17.2% of the total. However, many of these patients did gain some weight, which was again directly related to the extent of

the surgical procedure. The best weight gains occurred in those patients having vagotomy and gastroenterostomy or in those with vagotomy combined with a 60% gastric resection and gastroduodenostomy. Throughout the entire series a radical gastrectomy of the Billroth 2 type combined with vagotomy had the most detrimental effect on postoperative weight trends.

The patient's preoperative weight in relationship to his ideal weight is an essential factor in planning the surgical management of duodenal ulcer. It is especially important in those patients whose weights are below the minimal ideal standard. It should be remembered that gastric surgery irrespective of type decreases the efficiency of fat and, in some instances, of protein absorption; although variable, this factor is most marked following extensive resections.⁸ In addition the caloric intake will be limited in many cases as a result of disagreeable symptoms after eating, the incidence of which seems to be greater following the more radical procedures.⁹

The preoperative weight of the patient should influence the surgeon in his selection of operation. While the

TABLE 3.—Nutrition After Gastric Surgery According to Weight

Operation	Ideal Weight Realized		Gained Some Weight, Group 3 (35)
	Group 1 (74)	Group 2 (94)	
For Duodenal Ulcer			
75% Hofmeister-Polya resection....	67.7% (21 of 31)	11.1% (3 of 27)	1 in 2
75% Hofmeister-Polya resection with vagotomy	16.0% (1 of 6)	22.0% (2 of 9)	None
40% Hofmeister-Polya resection with vagotomy	66.6% (2 of 3)	33.3% (2 of 6)	1 in 2
60% Billroth 1 resection with vagotomy	100.0% (9 of 9)	46.0% (7 of 15)	3 in 4
Vagotomy with gastroenterostomy	62.5% (10 of 16)	34.7% (9 of 26)	3 in 4
For Gastric Ulcer			
Gastric resection	22.0% (2 of 9)	21.4% (3 of 14)	None

surgeon's preference may be utilized in those patients at or above ideal weight, he should strongly consider the more conservative procedure in those patients whose weight fails to meet these standards. We now tend to avoid the more extensive resections of the Billroth 2 type in groups 2 and 3. In these latter groups, we now utilize a 60% resection with a Billroth 1 type of anastomosis combined with vagotomy; when this procedure is not feasible technically, vagotomy and posterior gastroenterostomy are performed.

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Finally, the surgeon has the responsibility of insuring a good nutritional status after gastric surgery. This may be accomplished by choosing an operation suitable to the patient's preoperative weight tendencies and also by paying close attention to the dietary management starting early in the postoperative period. To this end the use of seasoned, solid foods of minimal volume and low bulk and the avoidance of hypertonic fluids with meals have proved advantageous.

The wide divergence of reported results following gastric surgery for ulcer may well be explained by the varying nutritional states of the patients in the reported series. Perhaps the preoperative and postoperative weight trends and their relationships to ideal standards should be incorporated in the data used to evaluate the results of any surgical procedure.

SUMMARY AND CONCLUSIONS

Preoperative weight and the ideal weight are essential data in planning gastric surgery for duodenal ulcer. Satisfactory nutrition can be anticipated in two-thirds of patients who are at or above their ideal weight at the time of surgery, regardless of the procedure employed. Unsatisfactory weight trends should be anticipated in the great majority of patients whose preoperative weight levels are below their ideal weight, and these trends are related to the procedure employed. Control of the acid factor by means other than radical resection should be considered. Data on the preoperative nutritional status as well as on the postoperative weight trends of the patients reported on would seem highly desirable in the evaluation of the effectiveness of any operation for duodenal ulcer.

ETIOLOGY OF ANTISOCIAL BEHAVIOR IN DELINQUENTS AND PSYCHOPATHS

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Our thesis is that parents' unwitting sanction or indirect encouragement is a major cause of, and the specific stimulus for, such antisocial behavior as fire-setting, stealing, truancy, and unacceptable sexuality displayed by young delinquents or their adult counterparts, the psychopaths. The delinquencies under consideration are those arising in apparently "normal" families of good reputation and are not those largely determined sociologically in slum areas or juvenile gangs of any economic level.

The conclusion proposed here has emerged from studies carried out by us during the past decade, and it requires considerable amplification and evidential documentation. Some of the material has been published previously by us.¹ By means of study and concomitant treatment of the parents as well as of the child involved in the antisocial behavior, it becomes unmistakably evident that one or occasionally both parents derive unconscious, and less frequently conscious, vicarious gratification of their own poorly integrated forbidden impulses in unwittingly sanctioning and fostering such behavior in

the child. In every patient brought for treatment, in whom simultaneous intensive study of the parents was possible, the child's defect in conscience was traceable to a like defect in the parents' own poor resolution of unconscious impulses to similar antisocial behavior. Thus, just as normal parents derive vicarious gratification from good behavior in their children, parents who have poorly integrated forbidden impulses apparently derive gratification from the bad behavior of their children.

In so complex a setting as family life, a multiplicity of variables operates, so that no single secondary cause for delinquent behavior can be isolated. As already mentioned, it is our contention that unwitting permissive sanctioning by parents is a major and specific cause for children to live out antisocial impulses. Scientific proof of causation is not satisfied by demonstration of the invariable presence of the suspected cause (parental sanction) whenever the effect (antisocial behavior of children) is observed. It must be demonstrated also that the suspected cause does not occur unless the effect is also seen. This has been our experience. We have never observed these parental permissions without antisocial behavior in at least one child who had been chosen as a scapegoat. Our thesis is not merely reasoning based on *post hoc, ergo propter hoc*; the enmeshing interplay of parent and child in the affected area bespeaks more than a fortuitous time sequence.

ENLISTMENT OF A SCAPEGOAT

Often a parent may unconsciously select only one child to be the scapegoat in a family of several children, the others being exempted and consequently well behaved. An adopted child may be particularly suitable for such a role, since the encouraged misbehavior may be attributed to heredity rather than to parental encouragement. The young boy who was born when a girl was badly wanted, or the younger of two sons who superficially

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1. Material from some of the following works has been used in this paper by permission from the publishers: Johnson, A. M., and Szurek, S. A.: The Genesis of Antisocial Acting Out in Children and Adults, *Psychoanalyt. Quart.* 21: 323-343, 1952. Szurek, S. A.: Notes on the Genesis of Psychopathic Personality Trends, *Psychiatry* 5: 1-6 (Feb.) 1942. Johnson, A. M.: Sanctions for Superego Lacunae of Adolescents, in Eissler, K. R.: Searchlights on Delinquency: New Psychoanalytic Studies, New York, International Universities Press, Inc., 1949, pp. 225-245. Szurek, S. A.: Some Impressions from Clinical Experience with Delinquents, in Eissler, K. R.: Searchlights on Delinquency: New Psychoanalytic Studies, *ibid.*, pp. 115-127. Johnson, A. M.: Sanctions for Superego Lacunae, read before the Chicago Psychoanalytic Society, March 25, 1947. Szurek, S. A.; Johnson, A., and Falstein, E. I.: Collaborative Psychiatric Treatment of Parent-Child Problems. *Am. J. Orthopsychiat.* 12: 511-516 (July) 1942.

resembles the younger of two uncles who was "spoiled and no good from the start," is a likely candidate. Formulas for the unconscious selection of the unfortunate scapegoat are multiple. So also are the devious patterns for impressing him into his tragic role.

An example of this mechanism is shown in the following instance. A mother was alarmed to find her 5-year-old younger son playing with matches. The son reminded her of her "no-good" brother Ed, who also had set fires and who had aroused her jealousy because he was her father's favorite. She warned her son to stop playing with matches: "I told him fires should be only in a stove, a fireplace, or for cigarettes." All was well, so far. "But," she added, "I said that if he insisted on fires, we would burn some papers in the sink. My husband said it was stupid to burn papers in the sink, but I thought that it was better than burning the house down the way my brother Ed nearly did twice."

Note the vacillation between the mother's conscience-dictated prohibition and the permissive loophole of "... if he insisted. . . ." This telescoped case report provides clues leading to eventual explanation of (1) the selection of the scapegoat, (2) the choice of antisocial behavior to be fostered, and (3) a technique, concocted of vacillating prohibition and permission, for inadvertently encouraging the behavior. The subtle permissions and encouragement defy detection unless parent and child are studied intensively by one experienced in ferreting out significant clues.

EMERGENCE OF CONSCIENCE

A child's conscience is made, not born. It is not inherited ready-made but is developed, especially during the first six years of life, primarily through identification in great detail with the total behavior of parents. This identification or mimicry embraces the conscious and unconscious operations of the parents. To an equal extent, conscience develops from the parents' conscious and unconscious image of the child and from their concepts and hopes for a child. The normal mother never doubts that in a few years her children will learn absolute honesty about money. To her, there is no choice; it is axiomatic that stealing is absolutely forbidden. When a parent says, "Jimmie has never stolen yet, but somehow I worry that he may some day," further study always unearths the mother's own poorly integrated impulses to cheat and steal. The hostile content of her doubts about Jimmie is soon revealed, and there are scarcely formed fantasies of using him as her scapegoat to steal for her.

Paralyzed consternation may overtake a parent whose 7-year-old has just taken a dollar from the dresser or displayed a trinket pilfered from the dime store. Why this anxiety, confusion, or even undue hostility? Why not manage the matter firmly and directly? There is a reason. An impulse in the parent, alternative to complete honesty, compels vacillation and hedging rather than the establishment of a clear limit. That impulse may explode into a rage, with threats of the reformatory. Such a parental reaction suggests to the child that his impulses to steal really may get out of hand. In his unsophistication and dependency, he is inclined to accept the painting of Dorian Gray as a true image of himself.

The mature, normal parent neither anticipates impending disaster nor dismisses monetary transgression as

trivial. Instead, the problem is resolved promptly without anxiety or guilt. The mother says, "Susie, you took the dollar from the dresser; please get it for me at once. No one may take another's money without asking permission." She insists that the money be returned promptly. Of the dime-store trinket she tells Johnnie firmly and without anxiety that it is wrong to take things without paying for them. She accompanies Johnnie to the dime store to return or pay for the article. Storekeepers are accustomed to parents coming on such errands, and usually accept the proper restitution. Such a parent is neither the nagging, checking detective nor the permissive, lax condoner. She does not dismiss recurrent minor thefts with the rationalization "Oh, he will outgrow it," only to bring the child for treatment when the school complains of thefts.

Many parents, whose own poorly integrated prohibitions permit them to overlook recurrent slight offenses, suddenly react with guilt and alarm at the first suggestion of criticism from outside the home. They respond with righteous accusations and punishment. The child is confused and angry at what now appears to be parental betrayal. If the child is not too ashamed or frightened, he may give voice to his recollections of similar parental deceptions, initiating a vicious cycle of hostile blackmail and mutual corruption.

We cannot cheat a child or anyone else and expect the child to overlook it. There are many variations on the main theme that deception encourages deception, such as the admonition of the mother who says to the child, "Here is a dollar, but don't tell your father." A parent may not smile at keeping too much change from the grocer and expect his child to be honest about money. A mother may not encourage children to understate their age to enter a movie at half price and expect them to be honest. Similarly, to count integrity as a virtue is difficult for a child who repeatedly has experienced parental promises made lightly and broken without explanation or apology. A sincere apology or explanation is always accepted.

The psychopathic personality or "psychopath" of later years is the grown-up delinquent child with defects in conscience, who is in court for theft, burglary, forgery, or worse. In every such instance providing us opportunity for careful study, a long history is revealed of parental sanction of antisocial offenses, "bailing out," and "fixing"; the pattern may include illicit excuses to the teacher for daughter's absence from school, repeated restitution for son's bad checks, and dishonest support of the young transgressor against a neighbor's property.

TRUANCY

We have found that parental coldness and rejection are insufficient causes of truancy from home. These attitudes are nonspecific stimuli to which many children who do not run away are also exposed. Truancy usually results from suggestion at home, sometimes relatively overt, sometimes disguised and difficult to detect.

The 6-year-old child, sensing coldness and rejection, may say angrily, "You don't love me. Nobody loves me. I hate you all!" Then, and not infrequently, the specific stimulus may be applied by the parent in words such as, "Very well! Why don't you just pack your bag and go live some place else if you think we're so awful?" We have

observed that some parents even go so far as to pack the child's suitcase, which is a terrifying experience for the child. The suggestion to run away comes more frequently from inside the home than outside, for rarely do small children tell their friends that their parents are "mean" or get suggestions from other children to leave home. More subtle, less direct, but equally effective sanctions for truancy are the rule.

An example of parental approval and encouragement of this type of behavior is found in the case of 6-year-old Stevie, who had been running away since he was 4. His father recalled the boy's episodes of exploration in inordinate detail. This fact struck us as most significant. The father reported that during the same two years he himself had been forced to discontinue his work as a transcontinental truck driver, a job in which he reveled, for work that confined him to the city. It was striking to observe this father urging Stevie to tell of his most recent escapade and prompting with an eager reminder when the child guiltily hesitated. The account obviously fascinated the father. Suddenly the father angrily stopped the child with, "That's enough, Stevie; now do you see what I mean, doctor?" Stevie could not fail to sense his father's keen interest and pleasure in his tale on each return home, despite the inevitable whipping. The father was a kind, well-intentioned man who rightly feared for his little son's safety. He was, however, entirely unconscious of the fact that the stimulus of his own thwarted need to travel and his interest in Stevie's adventures was easily conveyed to this small, bright boy, of whom the father said, "Stevie's really a good kid. He would follow me around the top of a wall 50 feet high."

A smile of tacit but unwitting approval often belies a parent's complaints of impulsive and daring behavior of the child brought for treatment. Children are masters at sensing parental interest or gratification, however subtle, at a tale of naughtiness. Even if punishment comes after the interest-arousing narrative, the damage has been done. If even disguised parental pleasure preceded the spanking, the child will repeat the performance. To please mother or father is worth the punishment, although the contradiction between seduction, through evincing pleasure, and the spanking is impossible for the child to reconcile.

SEXUAL MISBEHAVIOR

The same pattern of selection of a scapegoat, choice of misbehavior to be suggested, and subtle guidance of the child into antisocial activity is seen in sexual misbehavior as in fire-setting, stealing, truancy, and other forms of delinquent behavior. Again, the variants of the theme are multiple. Parental suspiciousness or acute anxiety suggests that alternate forms of behavior may well occur on adolescent dates and might even be accepted; inordinate maternal curiosity regarding daughter's experiences with boys carries implied sanction; freely voiced interparental accusations of sexual aberrations stunt the child's growth of conscience in these areas; misguided, too exciting discussions about sex constitute unwitting approval; encouragement or display of undue degrees of nudity at home provides excessive permission. Illustrations are endless, but the following case is a good example.

The mother of a girl of 9 was excessively concerned lest her daughter misbehave when she began dating. Examination and analysis of these premeditated fears revealed a submerged impulse in the mother to have the child so act substitutively because the mother herself was sorely tempted to promiscuity. When the child became older, detailed suspicious questionings and dire warnings constituted unwitting permission, because the mother transmitted to the daughter a maternal concept of the girl behaving otherwise than acceptably.

Lack of faith from a source that should impart strength weakens the inhibitions. Again, the mere hint of a little too much interest and a slight shadow of pleasure at hearing tales of daughter's nocturnal adventures loom larger in the daughter's mind than scolding or punishment.

These relationships are universally present and may be discovered if there is the will to do so, together with the skill and patience to detect them. This usually requires close collaboration between two therapists, one for the parent and one for the child.

It is amazing to discover the extent to which intelligent families of respectable status accept or even encourage varying degrees of nudity, including the complete variety, with conversion of the bathroom and its gamut of functions into something resembling a family Grand Central Station. This attitude is accompanied by a "frankness" regarding procreation and its antecedent ramifications carried far beyond the needs of the curious child. The setting is not the bridge table or locker room but the home, with children and adolescents who are inclined to be a bit abashed by both the content and the artificiality of the proceedings.

Much of this spuriousness is perpetrated in the name of Freud, who was actually an extremely conventional person. True, he recognized the biological curiosities of children, their confusion regarding the two sexes, and their frustrations in competing with one parent for the affections of the parent of the opposite sex. But always in such matters Freud was the advocate of moderation and restraint; the parent was to answer the child's specific questions about sex but not to deliver a lurid oration that was gratuitously extended far beyond the answer sought. He decried equally either a reaction of guilt and horror to a child's questioning or an anxious outpouring of unsought information that is more confusing, even if accurate, than reassuring. He never encouraged exhibitionistic displays of nudity around the home, knowing that too much of this only increased children's anxiety.

MALIGNANT SEQUELAE OF FRUSTRATIONS

The degree to which "freedom" is practiced in the best of families is remarkable. Mothers who, under the guise of motherliness, take to bed with them male children who are well beyond infancy or even into adolescence, or fathers whose caresses of adolescent daughters slightly exceed paternal affection, store up grapes of wrath in the child. On the one hand is permissiveness from the ultimate source of permission, the parent, and on the other hand is frustration, born of parental guilt, for not stopping before the beginning.

The sequelae flowing from such combined permission and frustration are as predictable as those from the administration of thyroid hormone to a normal person.

Adolescents in such a dilemma may (1) regress to a more childish perverse sexual outlet, such as exhibitionism, homosexuality, or fetishism, (2) develop a malignant neurosis, (3) disintegrate into a psychosis of suicidal or homicidal content, (4) give vent to volcanic rage, sexually colored, in sexual violence against women, or (5) enact murderous violence against the parent, usually son against mother. Again, there is no dearth of illustrations.

In one case, a mother came to us complaining that her 16-year-old son had recurrent "wild fears he might kill her" and that recently he had become exceedingly obese. Glibly at first, then with anxiety and guilt, the mother characterized the son as "his mother's boy," who liked to lie abed with her. Oblique inferences to his lack of friends elicited the response, "Mom is my girl." His ultimate effort was a regression toward an earlier developmental level, eating enormously, but without success in blanketing the rage engendered from permission and prohibition. The frightening urge to kill brought mother and son to treatment.

Too often the case ends in a state hospital or a newspaper headline. Nothing is mysterious about the cause of sexual crimes when we have a chance to study the parents of the offender.

MANAGEMENT OF DELINQUENCY

The evidence for the propositions expounded here, or, more properly, illustration of the facts recounted, lies at hand in every case of antisocial behavior in the group of persons under consideration. But this evidence must be sought with diligence, gentle persistence, and skill, usually by two therapists collaborating closely. Only the experienced observer will detect the clues and pursue them with such oblique and subtle questioning as will yield the truth. Direct questioning is fruitless. Unearthing of parental sanction for antisocial behavior in children is one of the most formidable challenges that confront psychiatrists.

Treatment of the parent is fraught with difficulty. If the parent has provided conscious sanction of the child's delinquency, treatment is usually impossible. If the parental role was unconscious, the uncovering of the parent's problems is a miserable or hazardous ordeal, and at times the therapy requires hospitalization.

Since parental sanction of antisocial behavior is usually unconscious, it is legitimate to question whether widespread lay knowledge of the role of parents in delinquency promises to limit the phenomenon. The thesis would appear to be defensible that the mischief perpetrated by the poorly integrated parents under consideration might well be curbed if it were generally conceded that delinquent behavior may not, without searching scrutiny, be ascribed to heredity, "bad companions," poor schools, or divorce. The poorly inhibited antisocial impulses of adults may not then so readily find expression in the encouragement of scapegoats. It is true that such adults would then become neurotic, evidencing emotional conflicts in which conscience has prohibited direct expression of an urge to antisocial action. Troublesome as such neuroses may be, in the form of phobias, compulsions, conversions, or a hundred other neurotic expressions, they are preferable to antisocial behavior, with its threat of perpetuation through generations. In most in-

stances, a neurosis, with conscience holding the fort, is more amenable to therapy than delinquency, in which the conscience is too weak or in abeyance. The therapist apportions no blame but prefers to interpose a barrier of understanding that would divert conflicts of parents toward individual neuroses rather than toward vicarious gratifications through the misbehavior of children.

SUMMARY

We have assimilated material from more than a decade of research and collaboration dealing with the cause of antisocial behavior in "good" families. The same cause is involved in the delinquent and in the psychopath, who is just a delinquent grown older. Of course, the more private family delinquencies in some instances may overlap the sociologic or gang antisocial behavior. By means of simultaneous psychotherapy of the parents and the child, we observed that the parents unwittingly condone and foster the child's living out the parents' own poorly inhibited antisocial impulses, so that the parents may achieve vicarious gratification. This obtains for stealing, recurrent fire-setting, sexual destructiveness, vandalism, and serious recurrent criminal behavior. A defect in conscience is permitted to develop in the child by the parents so that the parents unconsciously can achieve pleasure by permitting the child to misbehave seriously. The frequent parental hostile destructiveness toward the child who is the scapegoat and the unique significance of the choice of this particular child as scapegoat always can be discovered by thorough study of the parents.

A multiplicity of variables of mixed quality and quantity enters into the family rearing of any child, but the specific stimulus for the actual living out of a child's antisocial behavior is the unconscious, less often conscious, sanction from the parent. This specific behavior of the child is traceable to a specific defect in the parents' own conscience or integration in this area of behavior. It is advocated that there be a disseminated knowledge of these origins of delinquency, aimed at the erection of parental conscience barriers against the fostering of vicarious misbehavior, since such behavior may be transmitted from generation to generation through interpersonal living. Individual neuroses that may result, regardless of their severity, are more amenable to treatment than is the delinquency complex.

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Cross Resistance to Antibiotics.—The selection of alternative choices of therapy should be guided by the information contributed by cross resistance studies. Aureomycin would probably not be selected as alternative to terramycin, or vice versa, in refractory conditions due to resistance. In some bacterial genera and species, organisms resistant to aureomycin and/or terramycin are also resistant to chloramphenicol. Organisms resistant to viomycin and neomycin may be resistant simultaneously to streptomycin. Carbomycin would probably prove ineffective against erythromycin-resistant organisms, or vice versa. Among organisms which were resistant to aureomycin and terramycin, exposure to erythromycin produced a resistance to penicillin in experimental studies. With the problems of resistance and cross resistance so apparent, the *in vitro* antibiotic sensitivity test should be done on certain micro-organisms.—M. H. Fusillo, B.S., and Col. D. M. Kuhns, (MC), Cross Resistance of Bacteria to Antibiotics, *U. S. Armed Forces Medical Journal*, November, 1953.

IMMUNOHEMATOLOGICAL STUDIES IN HEMOLYTIC ANEMIA

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The purpose of this paper is to report three groups of observations, dealing with the serologic diagnosis, the pathogenesis, and the serologic changes resulting from hormonal therapy of so-called autoimmune hemolytic anemia. The unique feature of this type of acquired hemolytic anemia is that patients afflicted with it produce antibodies or antibody-like substances capable of reacting with their own red blood cells. This is not in accord with the old dictum that an individual does not produce antibodies against antigens of his own tissues. Exceptions from this rule in the form of hemolysins reacting with the host's own erythrocytes in patients with hemolytic anemia have been reported early in the century.¹ These early observations could not be reproduced, except in isolated instances, for over 30 years, until it was found that the antibodies in question are "incomplete," by which is meant that they require special conditions to become manifest, such as the presence of protein rich or other macromolecular diluents (for example, bovine albumin or human serum) or highly sensitive enzyme-treated red blood cells or use of a technique known as the antiglobulin or Coombs test. Since these techniques have been applied, autoantibodies have been found in large numbers of acquired idiopathic and symptomatic hemolytic anemias. The practical application of these recent developments is that the presence of autoantibodies expressed as a positive direct antiglobulin test or Coombs test is recognized as a significant finding in support of the diagnosis of acquired hemolytic anemia.

SEROLOGIC DIAGNOSIS

Autoantibodies in acquired hemolytic anemia are found in two forms. They are attached to erythrocytes and are known as cell-bound autoantibodies. Chemically, they are globulins as are all antibodies. They can be detected by adding, to red blood cell suspensions, antihuman globulin immune serum produced in rabbits injected with human globulin. This is the so-called direct Coombs test or antiglobulin test. Evans and Duane² described a technique permitting approximate quantitative estimation

of the titer of the direct Coombs test. Autoantibodies are found also as free antibodies in the plasma and serum of patients with this type of anemia. They are detected by mixing the patient's serum with his own red blood cells, with cells of the same blood group as his, or with cells of group O. In the technique employed here, the red blood cells were suspended in a 30% solution of bovine albumin, and the patient's serum was diluted progressively with serum of group AB, which lacks isoagglutinins. Saline as diluent for the serum and as suspending medium for the red blood cells is not suitable for demonstration of incomplete antibodies, but it is used as a preliminary step to the so-called indirect Coombs test for detection of free autoantibodies. In this latter test, saline suspensions of red blood cells are added to saline dilutions of serum. After incubation, which does not lead to a visible reaction, antiglobulin serum is introduced to bring out the coating of the red blood cells with antibodies.

In the third technique, enzyme-treated red blood cells are used. This makes the cells extremely sensitive to antibody action. (For details of tests and other technical procedures referred to in this paper, see footnote 4.) In most instances, cell-bound and free autoantibodies are found simultaneously. When only one is present, it is most frequently the cell-bound variety, which gives the positive direct Coombs test. Less frequently the opposite is true; only free autoantibodies are found. The latter may have special significance and will be discussed later. There is no reason to assume that cell-bound or fixed antibodies and free or circulating antibodies are different from each other. Actually, there is evidence in support of the conception that, as a rule, autoantibodies attach themselves, at first avidly to erythrocytes and appear as free antibodies in the plasma only after the red blood cells have become saturated with them. In other words, according to this conception, free antibodies constitute an overflow.

The following observations can be cited in support of this idea: Red blood cells giving a positive Coombs test cannot be made to absorb significant amounts of free autoantibodies from the serum; autoantibodies can be eluted from Coombs-positive red blood cells with proper techniques; absence or low titers of free autoantibodies are found most frequently together with low titers of the direct Coombs test; and finally, cells with high-titered direct Coombs tests are more frequently found in bloods with free autoantibodies and rarely in bloods without such antibodies.

Occasionally, free autoantibodies may be present in bloods with negative direct Coombs tests. In our series of 38 patients in whom autoantibodies were studied, 5 (or 13%) had a negative direct Coombs test, whereas one-third of patients with the positive direct Coombs test had no detectable autoantibodies (table 1). Examples of

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1. Widal, F.; Abrami, P., and Brule, M.: Les ictères d'origine hémolytique, *Arch. mal. coeur* 1: 193-231, 1908; Auto-agglutination des hématies dans l'ictère hémolytique acquis, *Compt. rend. Soc. biol.* 64: 655, 1908. Chauffard, A., and Troisier, J.: Anémie grave avec hémolysine dans le sérum: ictère hémolytique, *Semaine méd.* 28: 904, 1908. Chauffard, A., and Vincent, C.: Hémoglobulinurie hémolytique avec ictère polycholique aigu, *ibid.* 29: 601-604, 1909.

2. Evans, R. S., and Duane, R. T.: Acquired Hemolytic Anemia: I. Relation of Erythrocyte Antibody Production to Activity of Disease; II. Significance of Thrombocytopenia and Leukopenia, *Blood* 4: 1196-1213, 1949.

cases of the former variety and the explanations of at least some of them will be discussed later. Judging from reports in the literature, tests for autoantibodies in hemolytic anemia are frequently limited to the direct Coombs tests. Tests for free autoantibodies are reported less frequently. The lack of interest in free antibodies is in accord with the prevalent opinion that tests for free antibodies have nothing to offer in line of diagnosis not already provided by the Coombs test. In the light of the preceding discussion, tests for free autoantibodies may be of value in

TABLE 1.—*Relation Between Cell-Bound and Free Autoantibodies in Hemolytic Anemia*

Type of Anemia	No. of Positive Coombs Tests	Autoagglutinins			
		Positive		Negative	
		No.	%	No.	%
Acquired idiopathic.....	35	24	69	11	31
Acquired symptomatic.....	21	14	67	7	33

Type of Anemia	No. of Cases of Positive Auto-anti-bodies	Coombs Test			
		Positive		Negative	
		No.	%	No.	%
Acquired idiopathic.....	24	22	92	2	8
Acquired symptomatic.....	14	11	79	3	21

three ways. In the first place, 13% of cases of autoimmune hemolytic anemia in our series of 38 would not have been diagnosed serologically with the direct Coombs test alone (table 1). To attribute it entirely to technical pitfalls of the Coombs test is not in accord with our experience. To guard against technical sources of error inherent in the Coombs test, all possible precautions and suitable controls were included. The patients in whom free antibodies were discovered although the results of the direct Coombs test were negative fall into two groups: (1) those who had received corticotropin or cortisone therapy before they were first tested and (2) those whose tests revealed low titers of autoagglutinins, frequently detectable with only one of the three techniques used. The explanation, in our opinion, rests on the use of highly sensitive methods of antibody detection.

The second argument favoring inclusion of tests for free autoantibodies in the study of patients with hemolytic anemia is that they may be of value as an indication of the potency of antibody production. In other words, their presence and titer may add to the information furnished by the Coombs test. Thirdly, there are also technical reasons in favor of testing for free antibodies. The Coombs test has its limitations inherent in its complexity and especially in the difficulty of standardization of the reagent, the antiglobulin serum. That difficulty does not apply to most of the techniques used for testing for free antibodies. Furthermore, serum can be stored in the refrigerator for future comparative tests used in following up antibody levels. Red blood cells of the patient, the substrate for the direct Coombs test, do not lend themselves for such control studies beyond a very limited period, at most a week to 10 days. According to an interesting observation first reported by Dameshek³ and more recently confirmed and expanded by one of us (I. D.) with Oyamada,⁴ in some patients free autoantibodies react only with the patient's own red blood cells, while in

others, who constitute the majority of cases, the antibodies react not only with the patient's own erythrocytes but also with red blood cells of other persons, including those of the normally inagglutinable blood group O. This observation may or may not have direct practical significance currently, but it bears watching and deserves further study by gathering more data.

OBSERVATIONS RELATING TO THE PATHOGENESIS OF HEMOLYTIC ANEMIA

The question of the relation between autoantibodies and the hemolytic process has been the subject of much discussion: Is there a cause and effect relationship between the two or are they merely associated phenomena? A case like the one recorded in table 2 illustrates pointedly the justification for the preceding question. A direct Coombs test made on a 37-year-old woman (blood type A Rh₁ Rh₂ [CDE], serologic pattern + -, later + +) with acquired idiopathic hemolytic anemia resulted in a strongly positive response, and free autoantibodies were present. Prior to splenectomy, the patient received 25 pt. of blood, and corticotropin and cortisone were administered. After surgery, the anemic condition improved without further therapy and has remained improved for at least a year. In spite of the patient's clinical improvement and the apparent cessation of the hemolytic process, the

TABLE 2.—*Autoantibodies and Hemolytic Process*

Date	Direct Coombs Test, Titer	Red Blood Cells	Titer of Autoagglutinins at 37 C		Red Blood Cells (Millions)	Hemoglobin, Gm.
			Diluent, Serum-Albumin	RBC Treated with Papain		
12/ 9/52	1:64	Own Type O	1:16 Neg.	1:32 Neg.	1.42	..
12/18/52	1:512	Own Type O	no end point* 1:4	no end point 1:2	1.85	..
1/ 8/53	Splenectomy					
1/12/53	1:2048	Own Type O	no end point 1:2	no end point 1:4	4.33	13
4/23/53	1:1024	Own Type O	no end point 1:4	no end point 1:8	3.8	11.5
12/ 9/53	1:128	Own Type O	no end point 1:4	no end point 1:8	3.5	11.0

* The red blood cells of the patient were clumped in normal AB serum, in 30% bovine albumin solution, and, in the test in which red blood cells were treated with papain, in the controls without the patient's serum. This explains why no end point could be reached in the titration with the patient's serum.

titer of the direct Coombs test remained high, and the amount of free antibodies remained unchanged. It is not surprising that cases like the one described invite the conclusion that autoantibodies are not the cause of the hemolytic process. Actually, one could arrive at a different conclusion, namely, that the antibodies are only one link in the chain that is responsible for hemolysis. It may be

3. Dameshek, W.: Acquired Hemolytic Anemia: Physiopathology with Particular Reference to Autoimmunization and Therapy, in Proceedings of the Third International Congress of the International Society of Hematology, Cambridge, England, 1950, New York, Grune & Stratton, Inc., 1951, pp. 120-133.
4. Davidsohn, I., and Oyamada, A.: Specificity of Autoantibodies in Hemolytic Anemia, *Am. J. Clin. Path.* 23: 101-115, 1953.

that autoantibodies are preparing the cells for the destruction by the spleen and by other tissues with similar function. Removal of the spleen eliminates the site where the major job of destruction of damaged red cells takes place. This inference would be supported by evidence showing that red blood cells that give a positive Coombs test are functionally inferior to Coombs test-negative red blood cells.

Evans and Duane² studied susceptibility to hemolysis in hypotonic solutions of red blood cells of patients with

TABLE 3.—Effect of Corticotropin on Cell-Bound Autoantibodies (Coombs Test) in Hemolytic Anemia

Date	Direct Coombs Test, Titer	Red Blood Cells	Titer of Autoagglutinins at 37° C	
			Diluent, Serum-Albumin	RBC Treated with Papain
12/13/52	1:64	Own	no end point *	1:16
		Type O	1:4	1:16
2/19/53	1:1	Own	no end point *	1:4
		Type O	1:8	1:4
3/10/53	Neg.	Own	1:128	1:4
		Type O	1:8	1:2

* The red blood cells of the patient were clumped in normal AB serum and in 30% bovine albumin solution in the controls without the patient's serum; therefore, no end point could be reached in the titration with the patient's serum.

autoimmune hemolytic anemia. No consistent relationship between increased fragility of the cells and severity of the hemolytic process was demonstrated. Gardner⁵ reported significantly increased osmotic fragility in three patients with idiopathic acquired hemolytic anemia. These and other investigations present a strong argument in favor of an etiological relationship between autoantibodies and hemolysis.

We undertook to investigate further the resistance of red blood cells of patients with autoimmune hemolytic anemia to various damaging influences. Thus far, only preliminary pilot experiments have been completed. They are admittedly crude in execution but are interesting in that they point in the same general direction. More refined techniques are being applied and will be reported later. The preliminary studies included the use of hypotonic solutions of sodium chloride and the effect of low and high temperatures. Distilled water was added to whole blood with a positive Coombs test and to 50% suspensions of Coombs-positive red blood cells in AB serum and in saline. Two patients with idiopathic hemolytic anemia and with Coombs titers of 1:32 and 1:64 showed lessened resistance to hypotonic sodium chloride solutions. Two patients with symptomatic hemolytic anemia who showed no changes in resistance to hypotonic saline had Coombs titers of 1:8. Artificially sensitized type O, Rh-positive cells, with Coombs titers of 1:32, showed no significant lessening of resistance in hypotonic solutions of saline. The results were identical in all suspension mediums.

In another experiment, 50% suspension of red blood cells in the plasma of the same person, in AB serum, and in saline were incubated at from 2 to 5 C. Red blood cells of four out of five patients with acquired hemolytic anemia and with a positive Coombs test showed moderate to marked hemolysis after prolonged icebox incubation. Cold agglutinins were not responsible for the increased sensitivity to low temperature. Normal controls and Coombs test-positive red blood cells of a newborn infant with fetal erythroblastosis and cells artificially sensitized with anti-Rh₀ serum showed no hemolysis under the same experimental conditions. There was no difference depending on the suspension medium used. In other experiments, red blood cell suspensions were subjected to temperatures of 56 C and 60 C. The differences in the hemolysis observed in blood of patients with autoimmune hemolytic anemia and of controls were not sufficiently consistent in the preliminary tests. The preceding experiments show that, at least in some cases, a positive Coombs test and a lessened resistance to certain damaging influences go hand in hand. It is reasonable to conclude that autoantibodies are at least partly responsible for the excessive hemolysis in acquired hemolytic anemia. However, it should be mentioned that spherocytosis, which may be present in acquired hemolytic anemia, may by itself or in conjunction with other factors be responsible for the described manifestations of lessened resistance.

SEROLOGIC CHANGES RESULTING FROM HORMONAL THERAPY

The effect of corticotropin and cortisone on antibodies has been the subject of much recent discussion. Gardner reported a sharp decrease in the Coombs titer in patients with autoimmune hemolytic anemia following cortisone therapy.⁵ The question most frequently posed is: Do these substances inhibit or depress antibody production or do they interfere with the union of the antigen with the antibody? The answer to this question is of more than academic interest. Autoimmune hemolytic anemia offers an excellent opportunity for the study of this problem, because cell-bound and free circulating antibodies are present simultaneously in this condition.

Table 3 gives the results of therapy with corticotropin, 20-40 mg. administered daily to a male patient, 55 years old, of blood type B Rh₁ (CDe). The patient had chronic lymphatic leukemia with autoimmune acquired hemolytic anemia. After 66 days, the direct Coombs test results dropped from titers of 1:64 to 1:1 and later became negative, whereas the titers of free antibodies went down gradually but did not disappear entirely. A second patient (table 4), a 22-year-old woman of blood type A Rh₁ (CDe), with acquired hemolytic anemia possibly due to the toxic effect of chloramphenicol, received a month of intensive therapy with cortisone (1,500 mg.). The red blood cells numbered 2,500,000; the hemoglobin level was 8.8 gm. per 100 cc. (oxyhemoglobin photoelectric colorimetric method); and the serologic pattern was + — — prior to testing. After the therapy, the Coombs test result was barely detectable and similarly low were the titers of free autoantibodies. Two weeks later the Coombs

5. Gardner, F. H.; McElfresh, A. E.; Harris, J. W., and Diamond, L. K.: Effect of Adrenocorticotrophic Hormone (ACTH) in Idiopathic Acquired Hemolytic Anemia as Related to Hemolytic Mechanisms, *J. Lab. & Clin. Med.* 37: 444-457, 1951.

test was negative, but the free autoantibodies were still detectable; after two more weeks the Coombs test was still negative, and the free autoantibodies had disappeared. In this case again, the direct Coombs test became negative before the disappearance of the free autoantibodies.

In several other patients, administration of corticotropin or cortisone had a similar effect on the Coombs test. This result suggests that, at least in hemolytic anemia, these hormonal substances influence the union of the antigen with the antibody before the antibody production is affected. Doing only a Coombs test on the cells of patients with hemolytic anemia who received steroid therapy may lead to the false conclusion that no autoantibodies are present, when, actually, free autoantibodies are still there. It is possible that some statements in the literature to the effect that autoantibodies have disappeared after hormonal therapy are explained in the light of observations just reported.

TABLE 4.—Effect of Cortisone on Coombs Test (Cell-Bound Autoantibodies) and Free Autoantibodies

Date	Direct Coombs Test, Titer	Red Blood Cells	Titer of Autoagglutinins* at 37 C Indirect Coombs Test with Papain-Treated RBC
2/27/53	1:1 †	Own Type A Type O	1:8 Neg.
8/11/53	Neg.	Own Type A Type O	1:32 Neg.
8/28/53	Neg.	Own Type A Type O	Neg. Neg.

* Test for autoagglutinins with the techniques employing serum-albumin diluent and papain-treated red blood cells were negative throughout the entire period of observation.

† Very weak test obtained with special sensitive technique: 1 drop of 10% suspension of patient's red blood cells treated with papain plus 4 drops of Coombs serum. Negative after usual 30 minute incubation at 37 C but positive after 2 hours.

COMMENT

The foregoing observations suggest that free circulating autoantibodies may be the overflow remaining after the red blood cells have first absorbed whatever amount they can hold in the particular case. One of us (I. D.) has reported previously⁴ varying reactivity of free autoantibodies depending upon the source of cells used in the test (patient's own, cells of the same group as the patient, or cells of group O). In some instances only the person's own red blood cells were clumped and not other cells. In other cases the reaction with the patient's own cells was present in higher dilutions than with the other cells. In others again, all red blood cells were clumped to the same degree. The reason for these differences is not known, except that specificity of the antibody and the sensitivity of the particular cells may be involved. The increased agglutinability of the patient's own red blood cells may be explained by the additive effect of the free antibodies and the antibodies already attached to the red blood cells. The red blood cells giving a positive Coombs test have shown, at least in some cases, evidence of lesser resistance to high and low temperatures and in hypotonic solutions of sodium chloride. This may create a handicap just sufficient to facilitate excessive hemolysis when such red blood cells

are exposed to the damaging influences of a hyperactive spleen. Cortisone and corticotropin had a more pronounced inhibitory influence on the union of the antigen with the antibody than on antibody production in several cases of autoimmune hemolytic anemia.

SUMMARY AND CONCLUSIONS

The direct Coombs test and the test for free autoantibodies are both recommended for the study of autoantibodies in hemolytic anemia. Dependence on the Coombs test alone may lead to false negative results, because, under various conditions, notably after corticotropin and cortisone therapy, the Coombs test may become negative, whereas the free autoantibodies may remain in the circulating blood at the same or at the reduced levels. Technical reasons also recommend testing for free autoantibodies but only as an additional test and never to the exclusion of the Coombs test. In some instances Coombs test-positive red blood cells showed lessened resistance to certain damaging influences. This favors the view that there is a cause and effect relation between autoantibodies and the hemolytic process. Corticotropin and cortisone therapy seemed to inhibit the binding of the antibody by the antigen. The influence upon the free antibodies was less pronounced.

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An Even Keel in Orthopedics.—More than half the boys leaving public schools have lost their tonsils, and as many as four in five their foreskins. One wonders how many have been subjected to wedged shoes and so-called remedial exercises: certainly a very large number. . . . A child who intoes because of tibial torsion counteracts this by flattening his feet. If valgus wedges are prescribed he will intoe even more and will probably be taken elsewhere. None can cavil at correction of valgus feet in a child with knock-knees, but any wedge is too great that throws the foot into varus; nothing encourages knock-knee so much as pes varus. Normal children go through a phase of knock-knee, which soon disappears if they are lucky enough to avoid treatment; if, on the other hand, they have to contend with a man-made pes varus, they usually still get well, but much more slowly. . . . When I was a child our nannies made us turn our toes out; nowadays our physiotherapists would make us walk on the outer sides of our feet: better nanny's valgus than physio's varus. Another very bad custom among many physiotherapists is the passive stretching of tight posterior calf muscles, which must respond by becoming tighter still; physiological relaxation is promoted by active dorsiflexion without pronation. . . . Misuse of rest now provides a less abundant harvest for the bonesetter than it did. But it is still one cause of porotic bones, damaged growth plates, and stiff joints. Splinting paralysed parts did not stiffen joints when these were put daily through their full range of movement subject to the dictates of pain. It was the misuse of splints, and an exaggerated campaign against passive movements in all circumstances, that produced the stiffened joints in paralysed limbs. Against these bad results of bad treatment there arose a worse reaction. Painful limbs in the active stage of poliomyelitis were moved, not with restraint, but forcibly and mercilessly with a violence that tortured patients, promoted spasm in still active muscle and even caused myositis ossificans. . . . The strengthening effect of muscle reeducation has obscured its other principal effect—the physiological promotion of relaxation in unparalysed opponents. This can be encouraged before any power has returned to the paralysed muscles if the patient makes early attempts to contract them. Active exercise, the basis of physiotherapy, must be tempered with wisdom.—H. J. Burrows, M.D., *Proceedings of the Royal Society of Medicine*, October, 1953.

RADIOLOGICAL ESTIMATION OF PELVIC EXPANSION

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It has long been recognized that the usual obstetric patient will deliver her second and third babies with greater ease and with shorter labor than her first. This is true even though customarily the birth weight of each succeeding child shows a slight increase over that of its predecessor. The decrease in dystocia in each succeeding delivery has in the past been attributed to the dilatation and lacerations of the soft parts of the birth canal, the lower uterine segment, cervix, vagina, and perineum. On this basis one would expect all multiparous deliveries, without positional dystocia, to be easier, provided the contractions are efficient and the increase in the size of the baby not excessive. However, an appreciable percentage of primiparous and multiparous second stage labors resemble each other closely. It is, therefore, necessary to consider that other factors may be responsible for inconsistent prognostications of multiparous deliveries.

Heretofore the incidence, degree, and clinical significance of pelvic expansion during pregnancy and labor have never been accurately estimated. Allen¹ has noted that the usefulness of pelvimetry at the midplane level is limited, owing to the physiological increases in the diameters possible during labor. Moir and others² have stated that, if pelvic measurements are inadequate in the cavity or outlet only, some 25% of easy deliveries may occur, especially in multiparas, because of pelvic expansion. Allen has further remarked that at the midplane the difficulties of deciding whether vaginal delivery is possible are even greater than at the inlet. "This is partly because of greater moulding of the skull and partly because the diameters at these lower levels are capable of physiological increase during labor." Stander (1945), for example, considers that an exaggerated Sims position will increase the posterior sagittal diameter of Klein at the outlet by an average of 7.5 mm. and occasionally by as much as 40 mm. Morris (1947) drew attention to the possibility of dislocations and fractures occurring in the region of the sacrococcygeal joint. Marked widening of the symphysis has been reported.

In previous investigations on the subject,³ the symphyseal spread and the sacroiliac joints were measured in nulliparas, primiparas, and multiparas. Regarding the

pubic articulation, the symphysis regularly undergoes relaxation with an average increase in width of 3 to 4 mm., there being no essential difference in primiparas and multiparas. The most striking finding has been the tremendous variation in symphyseal spread of different persons. The maximum was 30 mm. and the minimum 3 mm. Relaxation begins in the first half of pregnancy, progresses until the last two months, and is affected in varying degrees by parturition. Retrogression begins immediately after delivery and is usually complete in four months. Abnormal separation of the symphysis pubis sufficient to be considered pathological separation has occurred in 25% of the cases.

In no previous study have the effects of symphyseal spread, subluxation of the sacroiliac joints, or other factors been considered as factors in pelvic expansion. Expansion at the midpelvis has been assumed by Moir and others but has never been accurately estimated.

The question of whether the true bony pelvis undergoes significant expansion before or during labor is certainly more important than how much molding a head can safely undergo, since pelvic expansion is always safe, whereas molding may be dangerous. By studying 171 pregnant patients who had x-ray pelvimetry by the same technique 10 days before term of two or more pregnancies, it has been possible to estimate the degree and frequency of pelvic expansion during pregnancy and labor and to estimate its clinical significance.

EFFECT OF SUCCESSIVE PREGNANCIES ON PELVIC INLET

Coronal Diameter (Greatest Transverse of Inlet).—In 150 women of whom films were made at the end of the first two pregnancies, the average increase in the greatest transverse of the inlet was 3.4 mm. This is significant clinically, for even in extreme degrees of molding it is doubtful that more than a 3 mm. reduction in any diameter is achieved. If the average transverse diameter of this inlet is 135 mm., this expansion is about 2.5%. In 43 women who were studied at term of the second and third pregnancy, the average increase was less, 2.5 mm. or almost 2%. The largest increase was 10 mm. Eighteen per cent showed no expansion after the first delivery, and 28% showed none after the second delivery.

In consideration of the accepted limits of accuracy of x-ray pelvimetry, the degree of molding that can be safely allowed, and, because a change of 5 mm. represents 4% of the 15% clearance allowed by Mengert⁴ in his estimations of dystocia, it was decided to consider any change of 5 mm. or more as significant. This amount of expansion occurred in 52 of 150 cases, or 34% of patients studied at term of the first and second pregnancy, and in 9 of 43 cases, or 21% of those studied at term of the second and third pregnancy. Of the 23 patients in whom films of the pelvis were made at term of the first, second, and third pregnancy, 59% showed greater expansion of the transverse inlet diameter between the first and second delivery and 32% greater

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3. Abramson, D.; Roberts, S. M., and Wilson, P. D.: Relaxation of Pelvic Joints in Pregnancy, *Surg., Gynec. & Obst.* 58: 595, 1934. Heyman, J., and Lundquist, A.: Symphysis Pelvis in Pregnancy and Parturition, *Acta obst. et gynec. scandinav.* 12: 191, 1932. Young, J.: Relaxation of Pelvic Joints in Pregnancy: Pelvic Arthropathy of Pregnancy, *J. Obst. & Gynaec. Brit. Emp.* 47: 493, 1940.

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expansion between the second and third delivery. In only two of the seven cases in which there was more increase between the second and third delivery was there evident cause for the expansion, such as a much larger baby or a difficult delivery. Four per cent increased the same amount in each gestation, and 4% showed no change after either delivery.

In 50% of these cases there was an increase in the transverse inlet diameter in each pregnancy. In 23% there was an increase after the initial delivery only, and in 14% only after the multiparous delivery.

Sagittal Diameter (True Conjugate).—There was no consistent or significant change in the true conjugate or the anteroposterior diameter of the inlet. Any change in the capacity of the pelvic inlet, therefore, is due to an increase in the coronal diameters. The increase is reflected as an increase in area, only proportional to the linear increase of the transverse diameter involved.

MIDPELVIS

In considering the change between nulliparous and primiparous patients at term, the average increase of the interspinous diameter in 144 cases was 3.7 mm. The average increase in the interspinous diameter that occurred between the second and third delivery was 2.8 mm. The largest change was 16 mm. In 10%, the increase was 10 mm. or more. One patient in each group showed a 1 cm. decrease without evident clinical cause.

It is accepted that 10.5 cm. is the average interspinous diameter. The margin of clearance at this level is much less than at the inlet, and, therefore, a 0.5 or 1 cm. increase is certainly significant. An increase of 1 cm. is about 10% and is two-thirds of Menger's 15% variation allowed for estimation of midpelvic dystocia. An increase of 1 cm. in some cases of contracted midpelvis would raise the midpelvic index above 13.5 and could explain successful delivery with a smaller index.

Of the 23 patients on whom x-ray pelvimetry was performed in three successive pregnancies at term, the interspinous diameter in 52% increased more between the first and second pregnancy than between the second and third. In 26%, the reverse was true. In 4%, the increase was equally distributed, and, in 18%, there was no increase involved in any pregnancy.

In the same series, 35% showed an increase in the interspinous diameter after both pregnancies, 30% showed an increase only after the first pregnancy and 18% only after the second pregnancy. In 17% there was no increase after either delivery.

Sagittal Diameter of the Midpelvis.—There was no definite increase in the anteroposterior diameter or its posterior sagittal component at the midpelvis. Any increase in midpelvic capacity in successive pregnancies would, therefore, be due to the linear expansion of the interspinous diameter.

SEPARATION OF SYMPHYSIS

Pathological or excessive symphyseal spread—five or six times the prepregnant distance—occurred in 4 of the 171 patients studied, an incidence of 2.4%. When it occurs, coronal measurements at all levels of the pelvis are enlarged. At the inlet, the transverse diameter was increased from 6 to 9% and the interspinous diameter

of the midpelvis from 3 to 8%. Since the spread between ample and contracted pelvis is only 15%, these figures for pelvic expansion in conjunction with symphyseal spread are significant. The pelvic expansion in conjunction with symphyseal spread for one patient was:

	Gravida 1	Gravida 2	Gravida 3	% Increase
Transverse of Inlet, Cm.....	15.2	15.6	16.6	9.2
Interspinous, Cm.....	13.0	13.2	14.0	7.8
Symphysis, Cm.....	0.6	1.5	3.0	500.0

COMMENT

I believe that coronal expansion of the pelvic inlet has been demonstrated in the great majority of pregnancies and to a significant degree in about one-third of the cases. These questions remain to be answered. Does the expansion occur during pregnancy, labor, or delivery? The expansion occurs mostly during pregnancy, but also to some extent during labor and delivery. What are the factors that determine whether expansion will occur? This study showed that the degree of expansion is not dependent on the age of the patient, the weight of the baby, or the difficulty of delivery. The only factor that was significant was that the incidence and degree of expansion was more pronounced in primiparas than in multiparas. Is the expansion permanent? The pelvic expansion is permanent, except when it is accompanied by pathological symphyseal spread, in which case coronal contraction occurs simultaneously with the reduction of the separation of the symphysis in the late puerperium (six months).

Can we rely on expansion in a clinical sense? Many yardsticks have been applied to the radiological estimation of pelvic capacity, but they all have the disadvantage that in a small percentage of cases relatively easy deliveries may occur with a pelvis with dimensions that lie in the dystocia range.⁵ This has led some investigators⁶ to discredit the establishment of criteria for dystocia and instead to substitute a trial of labor. Because of the pelvic expansion that occurs in the majority of cases during pregnancy and labor, it would be wise to reevaluate the standards for dystocia. Since the criteria were established not arbitrarily, but by the results of experience, and in view of the fact that not all pelvis expand during pregnancy and parturition, I suggest that, in cases in which the dimensions are within 5 to 10% of the lower limits of eutocia, a trial of labor is justified both in primiparas and multiparas. In the majority of cases, moderate expansion of the pelvis is expected in successive pregnancies and to a limited extent in the current pregnancy and parturition.

SUMMARY AND CONCLUSIONS

Significant pelvic expansion occurs in about one-third of all pregnancies. The expansion is permanent, except when accompanied by pathological symphyseal spread. Since the conditions under which expansion occurs are inconstant, a trial of labor is recommended if the dimensions are within 5 to 10% of the eutocia levels at the inlet and midpelvis in both primiparas and multiparas.

1462 Greenport Rd. (91).

5. Kaltreider, D. F.: Transverse Diameter of Inlet, *Am. J. Obst. & Gynec.* 62: 163, 1951.

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THE CONTRACTED OUTLET

D. Frank Kaltreider, M.D., Baltimore

The recognition of contraction of the pelvic outlet is almost as old as the recognition of the contracted inlet. Williams¹ cites reports by Deventer, de la Motte, and Smellie of isolated cases of outlet contractions. Breisky,² in 1870 recommended the examination of the intertuberos diameter and invented a pelvimeter to measure it. Klien³ measured the posterior sagittal diameter of the outlet and made the statement that if the intertuberos diameter were 8.5 cm., it would be necessary for the posterior sagittal diameter to be 7 cm. Williams⁴ and Thoms⁵ popularized the sum of the intertuberos and the posterior sagittal diameters in this country in the first and second decades of the present century. They recommended 15 cm. as a borderline sum, expecting little difficulty above 15 cm. and increasing difficulty below it.

MATERIALS

These two measurements of the outlet, the intertuberos and the posterior sagittal diameters, are easily obtained. In fact they are the most easily obtained measurements of the pelvic cavity. In order to determine exactly to what use they could be placed in our clinic and in order to determine whether the use of this sum could be of sufficient prognostic value to determine management of the patient before the onset of labor (for example, elective cesarean section in marked contraction), our material was analyzed as far back as 1947. The material consists only of those patients in whom roentgen pelvimetry was done, since the correlation between clinical and x-ray measurements seemed desirable. There were 2,491 patients in whom pelvimetry was done roentgenologically. From this group the following patients were eliminated (a) all patients who had been delivered by cesarean section (330), except for those with outlet contraction after labor (13); (b) all those who had abnormal presentations (125), such as breech and transverse lie; (c) all patients delivered by midforceps (135), midforceps being defined as an application on a fetal head that has not reached the perineum, but when the biparietal di-

ameter has transversed the inlet; and (d) patients with infants weighing under 2,500 gm. and above 4,000 gm. Thus the material consists of all vertex deliveries (1,866) in which labor proceeded to full dilatation of the cervix and terminated spontaneously, by low forceps or by cesarean section in infants weighing between 2,500 and 4,000 gm. There were 35 deliveries for which no record is available.

These patients were then analyzed in the following manner. The various yardsticks for determining outlet contraction were correlated with the percentage of difficult deliveries. Difficult deliveries are defined as those in which (1) excessive traction was necessary to consummate vaginal delivery; (2) if rotation was indicated, difficulty in rotation was encountered; (3) cesarean section was done after full dilatation of the cervix because of lack of progress in the second stage with good contractions, with or without attempts at forceps delivery; and (4) the infants showed evidence of intracranial hemorrhage, whether the infant was discharged from the hospital alive or dead.

RESULTS OF ANALYSIS

By treating the above material in this fashion, the sum of the clinical intertuberos and posterior sagittal diameters was first examined at 0.5 cm. levels. Figure 1 shows the results. It should be noted that, in this particular type of system, when the sums become smaller there should be an increasing amount of difficulty. It can be seen that this is not so in this graph. There could be two reasons for this. 1. We cannot measure the intertuberos and posterior sagittal diameters accurately in our clinic. 2. This type of criteria is not the best for the demonstration of outlet contraction. To test the first hypothesis, patients who had a clinical intertuberos diameter measurement between 8.6 and 9 cm. were examined roentgenologically and the measurements compared. The most frequent readings were between 10.1 and 11.5 cm. with a spread between 8 and 13 cm. When one adds 2 cm. of soft tissue to the clinical intertuberos diameter of 8.6 to 9 cm., making it 10.6 to 11 cm., we were correct in slightly over 20% of the cases. This indicates that we were inaccurate in our clinical measurements.

We next examined the sum of the intertuberos and posterior sagittal diameters as determined by x-ray measurements. Figure 2 gives a much more satisfactory curve and indicates that, if we were able to measure the outlet more accurately, the sum of the intertuberos and posterior sagittal diameters might possibly be used as a prognostic yardstick. However, since we cannot, we have been forced to abandon it for determination of the method of delivery. We use it only for gross screening purposes.

It is generally believed that the intertuberos and posterior sagittal diameters are good prognostic criteria and that the anteroposterior diameter of the outlet (A. P. O.) plays a minor role, if any, in outlet contraction.⁶ Our British friends do not agree with those of us in America who use the intertuberos and posterior sagittal diam-

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Read before the Section on Obstetrics and Gynecology at the 102nd Annual Meeting of the American Medical Association, New York, June 4, 1953.

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2. Breisky, A.: Beitrage zur geburtshilflichen Beyrtheilung der Verengerungen des Beckenausganges, *Med. Jahr.* 30: 1, 1870.

3. Klien, R.: Eine neue Methode der Beckenausgangsmessung, *Monat. Geburtsh. u. Gynak.* 2: 165, 1895; Die geburtshilfliche Bedeutung der Verengerungen des Beckenausganges: Insbesondere des Trichterbeckens, *Volkman's Samm. Klin. Vort.* 169, 1896; Zur Messung der Beckenausganges, *Zentralbl. Gynak.* 21: 131, 1897.

4. Williams, J. W.: Funnel Pelvis, *Am. J. Obst.* 64: 106, 1911. Williams.¹

5. Thoms, H.: Statistical Study of Frequency of Funnel Pelvis and Description of New Outlet Pelvimeter, *Am. J. Obst.* 72: 121, 1915.

6. Mengert, W. F., and Eller, W. G.: Graphic Portrayal of Relative Pelvic Size, *Am. J. Obst. & Gynec.* 52: 1032, 1946. Stude, W. C.: Some Remarks Concerning Cephalopelvic Disproportion, *Illinois M. J.* 66: 171, 1934. Daniels, C. D.: New and Original Method of Calculating Required Posterior Sagittal Diameter of Outlet in a Lateral Contraction of Pelvis, *Am. J. Obst.* 74: 238, 1916. Allen, E. P.: Standardised Radiological Pelvimetry: New Method of Measuring the Outlet, *Brit. J. Radiol.* 20: 164, 1947. Pieri, R. J.: Funnel Pelvis: Its Incidence and Importance, and New Pelvimeter for Outlet Mensuration, *Surg., Gynec. & Obst.* 59: 891, 1934. McCormick, C. O.: Outlet Pelvimetry and Its Importance, *Am. J. Obst. & Gynec.* 11: 794, 1926. Williams.¹

eters. As Moir,⁷ Williams and Phillips,⁸ and Morris⁹ of England recommend the anteroposterior diameter alone or combined with the interspinous diameter and subpubic angle, the anteroposterior diameter was examined next. Figure 3 shows a much more desirable curve. This

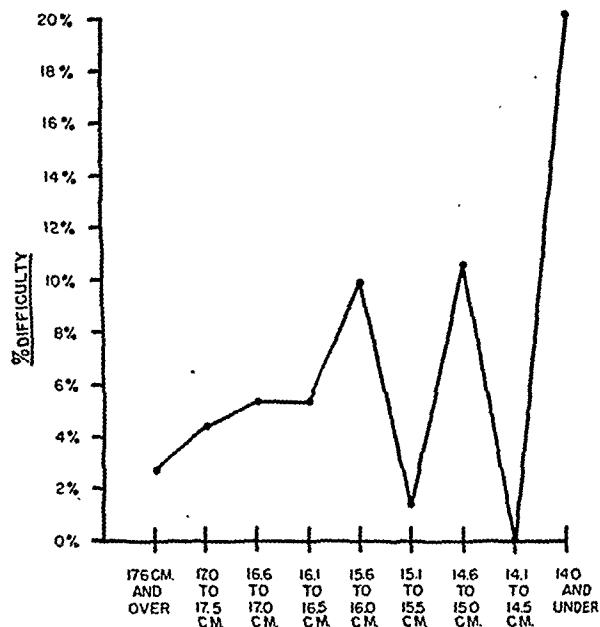


Fig. 1.—Per cent of difficulty in delivery based on sum of clinical measurement of intertuberos and posterior sagittal diameters.

curve is of value prognostically, since there is a definite break. The borderline diameter may be considered to be 10.5 cm. Unfortunately we do not have sufficient material to test the clinical anteroposterior diameter, but we suspect that it would not be very accurate, since in all

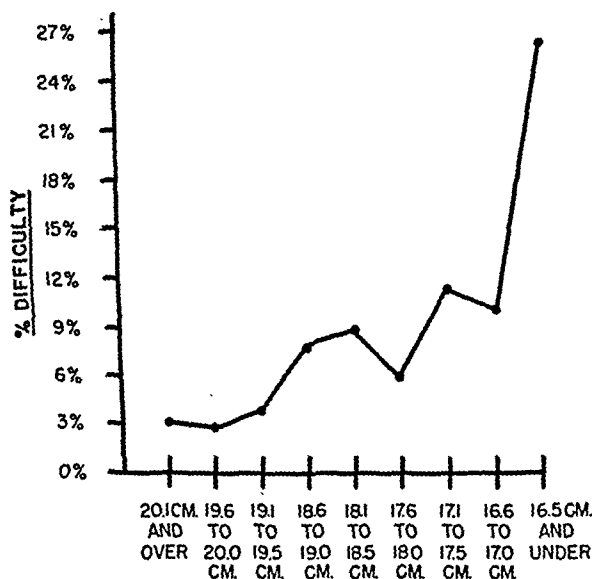


Fig. 2.—Per cent of difficulty in delivery based on sum of x-ray measurement of intertuberos and posterior sagittal diameters.

Because clinically it has been impossible for us to determine whether a difficult delivery in the low pelvis was due to the midplane, the outlet, or both, the interspinous diameter was tested (fig. 4). The interspinous of the midplane is a much more desirable curve than the outlet sum, but not quite so definite as the anteroposterior, although quite satisfactory. The critical diameter may be considered to be the 9 cm. level. This suggests that in many instances when we were under the impression that the obstruction was at the outlet, the actual disproportion was at least in some way concerned with the midplane.

This analysis has left us with three impressions. First, the use of the roentgenographic anteroposterior diameter will give a better yardstick to measure outlet contraction than the usually accepted criterion of the sum of the intertuberos and posterior sagittal diameters. Second, for practical clinical purposes, the midplane and the outlet should be considered as one plane. Certainly from an anatomic viewpoint these two planes can be separated

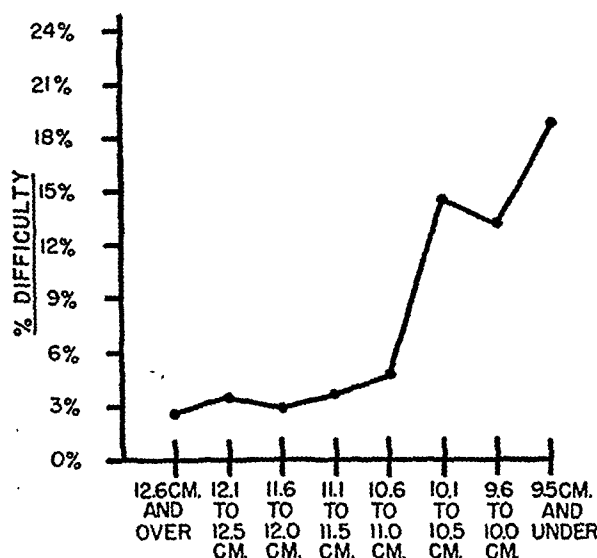


Fig. 3.—Per cent of difficulty in delivery based on x-ray measurement of anteroposterior diameter.

easily. When one manages the patient, however, the two planes cannot be separated. This latter conclusion was reached because of two facts (1) that the interspinous diameter gives a much better statistical criterion than do the intertuberos and posterior sagittal diameters and (2) that when the difficult midplane deliveries are added to the above material the character of the graph does not change (fig. 5). The third conclusion is that, since there is no absolute level with any yardstick in which an uninjured infant can be delivered vaginally, it must follow that by neither clinical nor roentgen examination can one predict vaginal or abdominal delivery, so the decision for doing an elective cesarean section on a vertex presentation without labor is not justified.

7. Moir, J. C.: Detecting Pelvic Contractions (Honyman Gillespie Lecture), Edinburgh M. J. 48: 361, 1941.

8. Williams, E. R., and Phillips, L. G.: Value of Antenatal Radiological Pelvimetry (Comparative Survey of Prediction and Event in 300 Successive Pelvimetric Studies at Queen Charlotte's Maternity Hospital), J. Obst. & Gynaec. Brit. Emp. 53: 125, 1946.

9. Morris, W. I. C.: Obstetrical Evaluation of Pubic Arch: Clinical Method, Lancet 2: 139, 1948.

the clinical measurements that we have tested, including the diagonal conjugate, the results were too inexact to be practical. We are, therefore, forced to accept the anteroposterior diameter as the best roentgenologic measurement for prognostication at the outlet.

TREATMENT

We have followed this type of management in patients with suspect midplane and outlet diameters. When there is an abnormal presentation, such as a breech, the decision must be made before labor, and in making that decision the general pelvic contour, pelvic measurements, and general fetal size must be taken into consideration. In vertex presentations we await the spontaneous onset

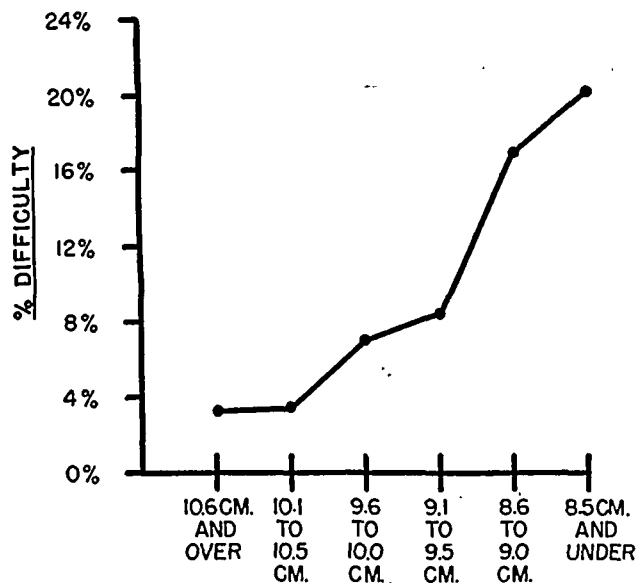


Fig. 4.—Per cent of difficulty in delivery based on x-ray measurement of interspinous diameter.

of labor. Antibiotics with a wide range are given, since at that moment we do not know how long the labor will be or whether the patient will be delivered abdominally. If true inertia develops, and there must be dilatation and effacement of the cervix for that diagnosis to be made, cesarean section is the procedure of choice. If normal contractions ensue, full dilatation of the cervix may be expected within a reasonable time. If there is normal descent in the second stage of labor, a spontaneous or easy low forceps delivery may be expected. If the presenting part fails to descend during the second stage of labor to bulging of the perineum, a trial of forceps delivery is made. If there is descent with gentle traction, vaginal delivery is consummated. If there is lack of descent with gentle traction and *vis-a-tergo*, we do not hesitate to deliver the patient abdominally through a laparotrachelotomy incision or by the extraperitoneal route.

In order for this type of management to be acceptable, we must deliver as many infants vaginally as possible, but without injury, and that includes those infants who leave the hospital alive. We had the following results before this line of management was followed, and we felt obligated to perform vaginal delivery when forceps blades were applied. These cases must include all patients regardless of the weight of the fetus. From July 1, 1947 to Aug. 1, 1951, we had 1,189 cases of vertex delivery in which x-ray pelvimetry had been obtained. Of those, forceps were indicated in 292 cases of which 177 were

easy forceps deliveries and 107 were difficult. There were seven cesarean sections done without attempts at vaginal delivery, and one cesarean section was performed after forceps failure. The fetal death rate was 4.5%, with an additional five infants injured. We have included shoulder dystocia because in each of these there was excessive traction necessary on the forceps to deliver the head. After delivery of the head, shoulder dystocia was recognized.

In the group of patients in whom we did not feel obligated to perform vaginal delivery after application of the forceps, there were 133 indicated forceps deliveries in 810 vertex deliveries. Seventy-nine women delivered easily vaginally, and 49 with difficulty vaginally. There were five patients in whom use of forceps failed and in whom cesarean section was done. There were no fetal deaths. Four infants were affected, but were discharged alive; two had intracranial hemorrhage and two had shoulder dystocia.

In the first paper¹⁰ on this subject Dr. Douglass and I did not include the easy low forceps deliveries that we encountered, and we used only the midforceps and difficult low forceps. This, we feel, was in error and are attempting to correct this mistake at this time. We are not convinced that this is the ultimate answer to this problem because (1) some inexperienced operators will, without a doubt, use too much traction; (2) there must be some infants who receive intracranial damage before attempts at delivery due to excessively potent uterine contractions and variations in each infant's ability to mold without

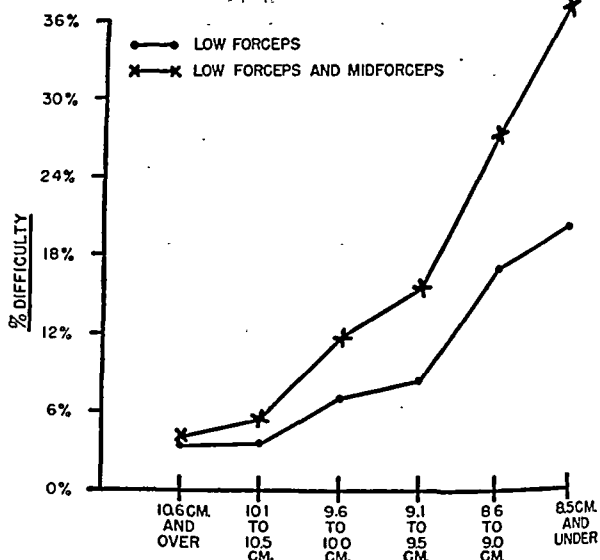


Fig. 5.—Per cent of difficulty in delivery with low forceps (and midforceps) based on x-ray measurement of interspinous diameter.

intracranial damage; and (3) the diagnosis of shoulder dystocia in these difficult vertex deliveries is extremely difficult before the head is delivered, although we should reevaluate fetal size when the pelvis does not seem too contracted and the forceps traction is not easy. However, we are sufficiently impressed with our reduction in fetal mortality with this group of patients at this time to continue with the trial forceps in practice.

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SUMMARY AND CONCLUSIONS

1. The anteroposterior diameter of the outlet measured by x-rays is a superior method of prognostication of difficult delivery than either the clinical or x-ray sum of the intertuberos and posterior sagittal diameters in suspect outlets.

2. From a practical, clinical viewpoint, the midplane and the outlet should be considered one plane.

3. The trial use of forceps is recommended in patients in whom there is lack of descent during the second stage of labor. If gentle traction and correction of any unfavorable presentation, such as occiput transverse or occiput posterior, does not easily consummate delivery, cesarean section is a better procedure than vaginal delivery for the sake of the infant.

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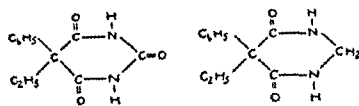
CLINICAL EVALUATION OF PRIMIDONE (MYSOLINE), NEW ANTICONVULSANT DRUG

Daniel Sciarra, M.D., Sidney Carter, M.D., Carmine T. Vicale, M.D.
and
H. Houston Merritt, M.D., New York

An appreciable number of patients with seizures are not helped by the standard anticonvulsants. There is, therefore, a constant search for new agents that will benefit this group. A new synthetic compound, primidone (Mysoline), has been made available to a number of investigators, and the results of four separate clinical trials had been reported at the time of writing.¹ Handley and Stewart^{1a} found this drug to be effective in 80% of 40 patients with grand mal seizures. In Butler's series^{1b} of 58 patients with all types of seizures, there was improvement in 50% of patients with grand mal attacks. Smith and McNaughton^{1c} were able to evaluate the results of primidone therapy in 61 patients and found that 35% were improved. Bonkalo and Arthurs^{1d} reported on the use of primidone in the treatment of epileptic and non-epileptic psychiatric patients. They noted a reduction in the seizure frequency in all of their 10 patients with clinical epilepsy. In the fall of 1951, primidone was made available to us for clinical trial. Since that time this drug has been administered to 121 patients, and the results of its use are the subject of this report.

CHEMISTRY AND PHARMACOLOGY

Primidone (5-phenyl-5-ethylhexahydropyrimidine-4,6-dione) is a compound closely related to phenobarbital. Basically, it is a reduced form of phenobarbital as a comparison of the two structural formulas indicates. Pri-



5-ethyl-5-phenylbarbituric acid (phenobarbital), figure on the left, and 5-phenyl-5-ethylhexahydropyrimidine-4,6-dione (primidone), figure on the right.

done is reported to compare favorably with phenobarbital, diphenylhydantoin (Dilantin), 3-methyl-5, 5-phenylethylhydantoin (Mesantoin), trimethadione (Tridione), and phenacemide (Phenurone) in abolishing the extensor tonic component of electrically induced convulsions in rats. The results were similar in pentylenetetrazol-induced convulsions in rats. In acute and chronic toxicity studies in animals, primidone was found to be relatively free of serious side-effects when given in amounts exceeding the recommended therapeutic dosage.²

CASE MATERIAL AND METHOD

The 121 patients in this series were for the most part those whose seizures had proved resistant to the standard anticonvulsants. Their ages ranged from 5 to 71 years, with the majority of patients in the age group from 20 to 40. Sixteen patients in this series were considered to have symptomatic epilepsy because of evidence suggesting the presence of gross neurological deficit. The remainder (105) were classified as having epilepsy of undetermined origin (idiopathic epilepsy). All seizure types were represented, but grand mal predominated either alone or in combination with one or more other types. In every case primidone was added to the medicaments that the patient was already receiving. The drug was supplied in tablets of 0.25 gm. each. The usual starting dosage of primidone was 250 mg. daily. This was increased one tablet daily at approximately weekly intervals to the point of therapeutic or toxic effect. If toxic manifestations appeared as the primidone dosage was increased, reduction of dosage of other anticonvulsants was usually carried out. Patients were seen at intervals ranging from one to four weeks. For the first year of this investigation, a routine blood cell count was done at each visit and later at longer intervals. Urinalyses were not done routinely but in a "spot check" manner.

RESULTS

The therapeutic effects could be evaluated in 72 of the 121 patients to whom primidone was administered. This group was followed for periods ranging from 1 to 18 months. The period of observation was 1 to 11 months for 28 patients and 12 to 18 months for 44 patients. In the remaining 49 patients, it was not possible to estimate anticonvulsant effect accurately, because administration

From the Department of Neurology, College of Physicians and Surgeons, Columbia University, and the Neurological Institute, Presbyterian Hospital.

The Mysoline was supplied by the Imperial Chemical, Ltd. (American distributors: Ayerst, McKenna & Harrison, Ltd.).

1. (a) Handley, R., and Stewart, A. S. R.: Mysoline: New Drug in Treatment of Epilepsy, *Lancet* 262:742, 1952. (b) Butler, A. J. M.: Mysoline in Treatment of Epilepsy, *ibid.* 264:1024, 1953. (c) Smith, B. H., and McNaughton, F. L.: Mysoline: New Anticonvulsant Drug, *Canad. M. A. J.* 68:464, 1953. (d) Bonkalo, A., and Arthurs, R. G. S.: Mysoline in Treatment of Epileptic and Non-Epileptic Patients, *ibid.* 68:570, 1953.

2. Data supplied by Imperial Chemical Co., Ltd.

had to be halted after the appearance of toxic reactions or because follow-up data were inadequate or unreliable.

The attacks were entirely controlled in 7 patients (10%), reduced in frequency in 31 patients (43%), and unchanged in 34 patients (47%). Beneficial effects were obtained in 33 of the 50 patients with grand mal seizures (66%); in 10 of the 15 patients with psychomotor attacks (66%); in 11 of 21 patients with abortive or fragmentary types of grand mal, the so-called minor seizures (52%)³; and in 6 of 13 patients with focal seizures (46%). No benefit was noted in the six patients with petit mal. Sixteen of the 121 patients had seizures satisfactorily proved to be a symptom of gross organic brain disease. The therapeutic results could be evaluated in 14 of these, 5 of whom were benefited by therapy with primidone. The dosage of primidone ranged from 0.25 to 2 gm. daily in 72 patients in this study. Approximately one-third of the patients received less than 1 gm. of primidone daily; the other two-thirds were given from 1 to 2 gm. daily. The number of patients who received primidone in each of the doses listed is shown in the following tabulation, with the numbers of patients on the left and daily doses in grams on the right:

4.....	0.25
5.....	0.5
1.....	0.625
11.....	0.75
2.....	0.875
23.....	1.0
6.....	1.25
9.....	1.5
10.....	1.75
1.....	2.0

SIDE-EFFECTS OF PRIMIDONE

The incidence of side-effects resulting from primidone as administered in this study in conjunction with one or more of the standard anticonvulsants could be evaluated in 79 of the 121 patients. One or more side-effects appeared in 65 of these 79 patients (82%). No serious toxic reactions were observed. Routine blood cell counts remained normal in all cases. Drowsiness was by far the most frequent complaint, occurring in 54 patients. Ataxia developed in 18 patients. Five patients complained of mental dulness, and each of the following symptoms appeared only once: edema of the eyelids, painful gums, anorexia, irritability, excessive fatigue, and sexual impotence. Drowsiness was characterized by a variety of terms by the patients and ranged in degree from mild and tolerable to severe and irresistible somnolence. Ataxia in most of the cases consisted of unsteadiness in walking; in one case this was accompanied by nystagmus and slurred speech. Dizziness was the complaint of two patients, and two reported that they felt "groggy."

Administration of primidone had to be discontinued in 25 patients because of the severity of the side-effects, even though 4 of these had improved. Toxic symptoms disappeared or subsided sufficiently in 18 patients when dosage of the other anticonvulsant medication was reduced. In this group, when drowsiness was the complaint, the other anticonvulsants were usually of the sedative variety, namely, phenobarbital, mephobarbital (Mebaral), and Mesantoin. In four instances in which ataxia was

noted, improvement occurred when the dose of diphenylhydantoin was reduced. In 11 patients the toxic manifestations entirely disappeared upon reduction of primidone dosage. The degree of toxicity was so mild in four patients that it could be tolerated. In one patient the side-effects were transitory, and no change in dosage of primidone or other medicament was necessary. In a third of the patients side-effects developed with a daily dose of 0.75 gm. or less, and two-thirds of the patients manifested side-effects with a daily dose of 1.25 gm. or less. In the remainder, the toxic manifestations appeared when the daily dose exceeded 1.25 gm.

COMMENT

The majority of patients with epilepsy that is resistant to therapy are usually maintained on a combination of anticonvulsant drugs. It is the practice of this clinic in administering a new compound to add it to the preexisting regimen of medication. In all but 7 of the 72 patients in whom the therapeutic results were evaluated, primidone was given in conjunction with other drugs. Unless toxic symptoms appeared, no attempt was made to reduce the patient's other medication. The results, therefore, reflect the anticonvulsant effectiveness of primidone when used in conjunction with one or more of the standard antiepileptic medications. Of the seven patients with completely controlled seizures, six were taking, in addition to the primidone, diphenylhydantoin alone or diphenylhydantoin in combination with phenobarbital, Mesantoin, or mephobarbital. The seventh patient was taking mephobarbital in addition to the primidone. In the improved group of 31 cases, the additional drugs were as follows: diphenylhydantoin, 10 patients; diphenylhydantoin and Mesantoin, 5 patients; diphenylhydantoin and phenobarbital, 4 patients; diphenylhydantoin and mephobarbital, 2 patients; diphenylhydantoin, Mesantoin, and phenobarbital, 1 patient; diphenylhydantoin, mephobarbital, and phethenylate, 1 patient; phenobarbital and Mesantoin, 2 patients; phenobarbital, 1 patient; and mephobarbital, 1 patient. Of the seven patients to whom primidone was given alone, four were improved and three were unimproved.

The results of this study indicate that primidone is the most effective in the treatment of grand mal, psychomotor, focal, and minor seizures. Although the number of patients with symptomatic epilepsy in this series is too small to be statistically significant, the therapeutic results may indicate that primidone will provide some benefit for a small percentage of patients with seizures in this category. The dosage of primidone would not seem to be a factor in the unimproved group in that 25 of the 34 unimproved patients took 1 gm. or more daily, while in the benefited group of 38 patients, 16 took less than 1 gm. daily and 22 took 1 gm. or more daily.

The incidence of side-effects (82%) is unusually high; however, no serious toxicity was encountered. None of the patients manifested any evidence of depression of bone marrow activity or of renal damage. The single instance of edema of the eyelids was found not to be of renal origin; moreover, all but seven of the patients in this study were taking other compounds in maximally tolerated dosage when the administration of primidone was begun, and for 18 patients the reduction of the dos-

3. Sciarrà, D.; Carter, S., and Yahr, M.: Minor Seizures, *Tr. Am. Neurol. A.* 70: 253, 1951.

age of one or more of the other medicaments resulted in the disappearance of side-effects. The fact remains, however, that it was necessary to discontinue administration of the drug in 25 of the cases in which toxicity developed and that toxic manifestations appeared in 5 of the 7 patients receiving primidone alone. One patient attempted suicide by taking 25 tablets of 0.25 gm. of primidone (6.25 gm.) in one dose. The only effect was a deep sleep of four to five hours' duration. No special measures of resuscitation were required.

SUMMARY

A new compound, primidone (Mysoline), was administered to 121 patients with one or more types of convulsive seizures. Its anticonvulsant effect could be evalu-

ated in 72 patients who were observed for periods ranging from 1 to 18 months. In all but seven, primidone was given in conjunction with one or more of the standard anticonvulsant drugs. Seizures were completely controlled in 10%, reduced in frequency in 43%, and unchanged in 47%. The greatest benefit occurred when the seizures were of the grand mal, psychomotor, minor, or focal types. No improvement was noted in any of the patients with petit mal. Side-effects occurred in 65 patients, but none were serious. Drowsiness and ataxia were the two most frequent symptoms and made it necessary to discontinue the administration of primidone in 25 patients.

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DIAGNOSIS AND TREATMENT OF ENCRUSTATIONS IN THE TRACHEA

THEIR RELATION TO RADICAL SURGERY OF THE HEAD AND NECK

John J. Conley, M.D., New York

Encrustations of the trachea as a complication of radical surgery of the head and neck have proved to be a serious and demanding problem in some instances. These encrustations are associated with the postoperative changes occurring in patients who have been subjected to tracheostomy. They impose an embarrassment to his respiration and indeed may precipitate asphyxiation and death. Care and prevention require diligent and aggressive supervision.

INCIDENCE

The incidence of encrustations of the trachea is not great. Approximately 10% of all patients who underwent resections requiring a temporary or permanent tracheostomy have postoperative encrustations to some degree. In only 2% did encrustations develop that were occlusive in size and capable of precipitating a dramatic airway block (fig. 1). If one is not alert to this problem and has not instituted prophylactic measures, the incidence may be higher. The vast majority of these cases occurred during the winter months. There was a definite relationship of the incidence of encrustations to the length of time the tracheostomy tube was permitted to remain in position. No encrustations were found in persons who wore a temporary tracheostomy tube for one to three days. The highest incidence of encrustations in the trachea was found in patients who wore the tracheostomy tube between the 3rd and 10th postoperative days. The incidence decreased after two weeks of tracheal intubation.

ETIOLOGY

Etiological factors contributing to the development of encrustations of the trachea may be divided into the intrinsic factors and the extrinsic factors. Although the intrinsic factors are more important than the extrinsic factors, it is the management and control of both of these situations that leads to the best therapy.

Intrinsic Factors.—Pulmonary Conditions: Any pulmonary condition that interferes with normal respiratory physiology contributes to the formation of encrustations.

Emphysema, bronchiectasis, chronic lung abscess, bronchitis and chronic lung disease fall into this category.

Tracheal and Bronchial Abnormalities: Any alteration in the respiratory epithelium of the trachea or bronchi is conducive to the formation of crusts. Intrinsic changes encountered in scleroma, fibrosis, atrophy, chronic infection, and metaplasia, and after irradiation over the trachea are all contributory factors.

Upper Respiratory System: Chronic or acute disease of the nasal cavity, sinuses, and pharynx associated with purulent postnasal drip into the trachea can affect the mucosal elements of the tracheal and bronchial tree. Thus these factors contribute to crust formation.

The Operative Area: The operative area includes the tracheostomy wound and also the major operative wound of the head and neck system that necessitated the tracheostomy. A purulent, infected discharge from the tracheostomy wound or operative wound that enters the trachea through the tracheostomy opening predisposes to the formation of crusts. A similar situation is created by the entrance of a purulent discharge from the operative wound into the trachea via the pharynx and larynx.

General Status of Patients: Major systemic disease that causes alterations in metabolism and electrolyte balance may be associated with dehydration, fever, and hyperpnea. These conditions predispose to the formation of crusts.

Extrinsic Factors.—Air Environment: Low humidity, particularly when associated with the drying effect of radiator heat in the patient's room during the winter months is conducive to the formation of tracheal crusts. A striking reduction in the incidence of this complication in the summer bears out the importance of this single factor.

Trauma: Trauma to the trachea caused by the irritation of the tracheal tube, excessive coughing, and frequent insertions of a catheter tip for tracheal irrigation all con-

tribute to tracheal encrustation. Such trauma should be avoided.

Infection: The lower respiratory system of the patient with a tracheostomy is constantly exposed to secondary infection. Such infection may be introduced from the catheter tip, from the hands of the attending nurse, from the insertion of tracheostomy tube, and from the unhygienic condition of the bedside table that holds the section catheter, the water for flushing it out, and the other accessory equipment.

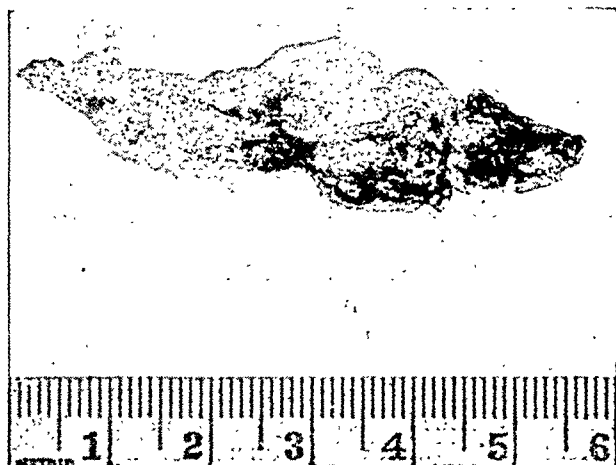


Fig. 1.—A 6 cm. crust coughed out through a tracheostomy tube on the 11th postoperative day.

Bacteriology: One might presume that a single pathogenic organism could be consistently cultured from the tracheal secretions. This has not been the case, and cultures have produced a variety of common and ubiquitous gram-positive and gram-negative organisms. The predominant organisms have been *Pseudomonas aeruginosa*, *Staphylococcus aureus*, beta and gamma *Streptococcus*, *Staphylococcus albus*, diphtheroids, *Escherichia coli*, *Aerobacter aerogenes*, and bacteroids. The absence of anaerobic and hemolytic organisms was curious. No investigation was made for virus infection as an etiological factor, but it is doubtful if it is significant.

The etiological picture appears to be a composite one, with combinations of intrinsic and extrinsic factors altering the basic physiology of the tracheal mucosa. Multiple contributory factors predispose to development of crusts in the area, but the actual destruction of the ciliated, columnar epithelium by bacteria and toxins permits the crusts to form. The mucous blanket becomes stationary. Additional secretions and discharge are deposited on this dehydrated layer. An enlarging, thick, heavy crust of fibrin, cellular material, and debris expands along the trachea, and all normal local physiological processes cease (fig. 2).

DIAGNOSIS

The greatest advantage in making the diagnosis is an awareness of the possibility of tracheal encrustations in all patients with tracheostomies and the probability of crust formations in persons afflicted with predisposing etiological conditions.

If the encrustation is small, there are frequently no clinical symptoms. The patient, however, may experience the sensation that he desires to cough up something in the

trachea. In the incipient stages of crust formation the tracheal mucus is usually abundant, tenacious, and purulent in character. It may also be blood streaked. As crust formation begins, the mucus becomes thicker and less abundant. As the crust becomes larger, the mucus is frequently obstructed and cannot be aspirated; then when the crust is removed a considerable amount of tenacious mucus is subsequently aspirated by the catheter.

Auscultation of the chest may be helpful in encrustations that cause a whistling or obstructive musical sound in the trachea or bronchi. Again small encrustations frequently produce no abnormal auscultatory phenomena. Large obstructive encrustations may cause complete obstruction with atelectasis in the terminal or large bronchi.

The diagnosis of large tracheal encrustations is usually not difficult. There is almost always a history of the patient's having coughed out smaller scabs on multiple occasions. The normal clinical improvement is often interrupted with dramatic episodes of coughing out large tracheal scabs that may or may not come through the tracheostomy tube with forceful expiration. X-ray study of the trachea during this phase may reveal the irregularity of the lumen due to infringement by the expansion of these scabs.

Perhaps the greatest information concerning the trachea can be obtained by personally inserting the catheter tip repeatedly into the trachea in an exploratory

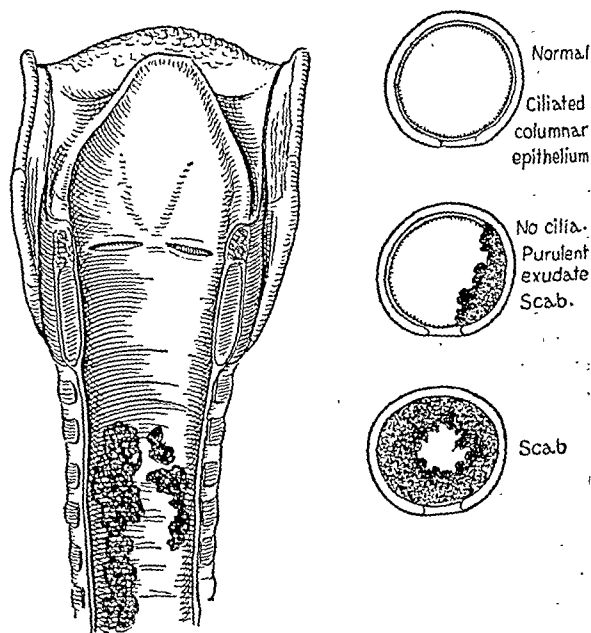


Fig. 2.—Drawing of encrustations on the tracheal wall. The inserts show the process of obliteration of the ciliated columnar epithelium and formation of lateral and concentric crusts.

and diagnostic maneuver. If obstruction is met anywhere along the course of the trachea or bronchi, then the diagnosis of tracheal encrustation may be made. On the other hand, passage of the aspirating catheter without meeting obstruction does not necessarily mean the absence of crusts, as the catheter can easily pass alongside of a quadrilateral crust or down the center of a concentric crust without difficulty. The commonest sites for catheter obstruction to be encountered are just beneath the tip of

the tracheostomy tube and at the level of the coryna. Frequently the act of inserting the catheter itself plus the violent cough reflex is enough to dislodge the tracheal scab. If it is of small diameter, it can be aspirated through the tracheostomy tube or coughed through the tube as a hard plug. If it is larger than the diameter of the tracheostomy tube, a characteristic wheezing and whistling type of respiration sets in with a bivalve phenomenon of alternate airway obstruction and relief with expiration and inspiration. This clinical situation always causes the patient extreme apprehension and excitement.

In a patient who has received inadequate postoperative aspiration and who has had excessive amounts of cough sedation, the tracheal scab may assume large proportions with complications. Atelectasis, pneumonia, air hunger, stridor, cardiac failure, or the total occlusion of the trachea or tracheostomy tube by a large encrustation may prove fatal. When the diagnosis has been unverified by previous clinical maneuvers and one is still suspicious of tracheal encrustations, a direct bedside bronchoscopic examination should be carried out for definitive information. When present they reveal a characteristic partial occlusion of the tracheal or bronchial air passage by an irregular hard dark crust. The mucosa beneath this scab is thickened, injected, and edematous, and is covered with a thin purulent exudate.

TREATMENT

The treatment of encrustations of the trachea is divided into the prophylactic and curative phases. The prophylactic phase begins with the anticipation of the formation of encrustations by careful evaluation of the predisposing intrinsic and extrinsic factors and the application of all measures to mitigate their effect. The surgeon can evaluate his patient and predict preoperatively with a great measure of success those persons in whom tracheal scabs are likely to form. This group consists of all patients with such predisposing conditions as emphysema, bronchiectasis, chronic lung abscess, bronchitis, and chronic lung disease. All tracheal and bronchial diseases characterized by intrinsic weakness of the respiratory epithelium secondary to chronic infection, scleroderma, fibrosis, atrophy, or intensive irradiation, predispose to scab formation. Other persons suffering from chronic sinusitis, pharyngitis, or purulent postnasal drip, have a predisposition to scab formation. All of these groups of patients are placed on a postoperative regimen that augments and favors lower respiratory function. They should receive adequate systemic biotherapy, aeropenicillin, frequent hygienic, atraumatic tracheal aspirations, and tracheal flushings with sterile saline solution four times a day; the humidity of the inspired air should be high. Special efforts should be made to prevent purulent discharge from draining into the trachea either through the tracheostomy opening or through the glottis. This is carried out by performing a circular excision of the tracheal cartilages in preparation for the insertion of the tracheostomy tube. This tube should fit snugly in the tracheal opening. The neck wound should be adequately drained away from the tracheal opening. All purulent secretions in the upper respiratory tract should be adequately aspirated.

If small encrustations of the trachea develop in spite of this regimen, aerosol trypsin (such as Tryptar) or detergents (such as Alevaire) should be incorporated into the program. They assist in dissolving crusts, thinning tenacious mucus, and clearing up the mucous membrane lining.

If large encrustations of the trachea develop, the situation becomes much more serious because of the danger of strangulation and the additional burden placed upon the heart, lungs, and major organs by chronic hypoxia. Often, the diagnosis of a large scab of the trachea is not immediately apparent. This is particularly true if the encrustation is concentric in form or if it is limited to one main bronchus just beneath the bifurcation. In these instances, the insertion of the aspirating catheter may meet with no obstruction and one may gain the impression that the trachea is clear. When these scabs become large enough, however, one encounters the serious signs of pulmonary obstruction, hyperpnea, stridor, tachycardia, hyperexcitability, and frequently atelectasis and bronchopneumonia. Encrustations that form in one or more quadrants of the trachea or bronchus (or bronchi) are frequently detected by causing an obstruction to the passage of the aspirating catheter. They should be softened with sterile saline solution and trypsin and dislodged with the aspiration catheter. In most instances, if they are not too large, they will be forcefully ejected with a strong expulsive cough through the tracheostomy tube. If the crusts are too large to come through the tracheostomy tube freely, the inner cannula should be removed after forceful cough with the hope that the encrustation will be withdrawn with it. If this is unsuccessful, the inner cannula is left out and the patient is encouraged to cough again.

If the encrustation is not extracted by these simple methods, the resident should remove the tracheostomy tube from the wound, and with the aid of aspiration, encourage the patient to cough forcefully. The encrustation may be coughed out through the circular tracheal wound or up into the mouth if it is not too large. If he has not been successful in removing the scab by this time, the patient should immediately undergo a bedside bronchoscopy with removal of the encrustation with an appropriate grasping forceps. The tracheal and bronchial trees then should be further inspected to rule out the presence of other encrustations. Bedside bronchoscopy, as an elective procedure, is desirable in the treatment of diagnosed concentric and large lateral crusts. When the clinical situation has become precipitant and bronchoscopy is not available, the surgeon may save the patient's life by inserting his finger into the tracheal opening and pushing the scab through the glottis into the pharynx.

The air environment should be highly humidified, and, if necessary, the patient should be placed in an oxygen tent where the local humidity can be more definitely controlled. The drying of air in the patient's room by radiators in the winter is a serious handicap. The use of a detergent or trypsin by nebulization is helpful in maintaining a high humidity and applying a crust and mucus digestant.

The trauma created by the insertion of the aspirating catheter should be kept at a minimum by using a no. 17 whistle-tip catheter that is inserted 6 to 8 in. (15 to 20 cm.) and then rotated between the thumb and index finger as the patient is encouraged to breathe deeply and cough. The patient should be turned from side to side so that both the left and right main bronchi may be aspirated.

There is no question that one of the precipitating factors to encrustation of the trachea is the repeated insertion of an unclean catheter that has been dragged all over the bed clothes and the bedside table, and perhaps has even fallen on the floor several times and is then fingered and wiped with unclean hands and tissues and finally irrigated in a basin of contaminated water. The repeated insertion of this bacteria-laden catheter with its associated trauma to the mucosa of the trachea and bronchi is often the precipitating factor in causing localized infection to the tracheal mucosa with the resultant destruction of the epithelium and the subsequent production of purulent exudate and scab formation. Therefore, great emphasis should be placed upon the hygienic methods of arranging and handling the suction apparatus.

The disappearance of these encrustations is quite characteristic. Large encrustations may persist for several days under the most energetic efforts to cure them. As the local tracheal mucosa begins to heal and the contributory etiological factors in the neck wound and oral cavity abate, the size and frequency of the occurrence of these scabs will gradually diminish. Their appearance will change from one or two very large and obstructing encrustations a day to perhaps five or six small scabs a day. With further improvement, the scabs will become smaller and less frequent in occurrence.

The most important single factor in eliminating encrustations is the return of respirations through the normal channels in the nose, pharynx and larynx. On the other hand, one hesitates to remove the tracheostomy tube of a patient who is forming extremely large encrustations in the trachea because of the danger of strangulation. In many of the radical procedures about the oral cavity, pharynx, mandible and tongue, a tracheostomy may be required for a period of one to two weeks or even longer. The ideal time for decannulation is when the encrustations have become small in size, the glottic and supraglottic airway are unquestionably adequate, and the patient is beginning to take nourishment by mouth without aspiration.

SUMMARY AND CONCLUSIONS

Encrustation of the trachea is discussed as a specific clinical entity in relation to tracheostomy. The association of this entity with radical surgery of the head and neck has given it added significance. The incidence of the condition and an analysis of the etiological factors indicate that the phenomenon develops from a composite situation associated with intrinsic biological factors and extrinsic physicoenvironmental factors. A careful evaluation of these factors mitigates the probability of crust formation. The importance of the effective control and treatment of this condition is emphasized by a shortened and improved convalescence and the diminution of the tragic danger of asphyxiation.

CLINICAL NOTES

INTESTINAL OBSTRUCTION DUE TO SWALLOWING OF AIR

REPORT OF A CASE

William Trevor, M.D., New York

The case to be reported of obstruction of the descending colon as a result of swallowing of air is of interest as I have been unable to find mention of a similar case in the world literature. Partial obstruction of the descending colon after swallowing of air by the patient over a period of several days was proved by roentgen-ray study with a barium enema. A total laryngectomy had been performed on this patient for cancer four years previously and, in order to speak, the patient used an esophageal voice necessitating the swallowing of quantities of air to be eructated so that the sound could be converted into speech by the lips, teeth, tongue, and palate. The mechanism of the obstruction can probably be explained by the fact that, owing to increasing distension of the proximal descending colon, the sigmoid folded over on itself near its peritoneal attachment, thus completing the mechanical intestinal obstruction.

A 60-year-old man was admitted to St. Clare's Hospital, May 2, 1951, with a chief complaint of having had no bowel movement for five days. The patient's daily bowel movements had been normal three weeks prior to his admission to the hospital, when he began a transcontinental motor trip; after this time the bowel movements became irregular. During the three days immediately preceding his admission, during enemas the water returned discolored at first but returned clear in four enemas the day before and in one on the morning he was admitted. Small amounts of flatus had been passed during this entire time. The day preceding his admission, his family physician administered neostigmine (Prostigmine) bromide; after therapy with this drug, a moderate amount of flatus was passed. The patient had never noticed any change in the caliber of the stool nor any evidence of bleeding from the rectum.

A total laryngectomy for carcinoma of the larynx with a permanent tracheostomy had been performed on the patient four years before. He had been trained to develop an esophageal voice by swallowing air into the esophagus and stomach and then belching the air forth when desiring to speak. At the age of 8, the patient had had rheumatic fever; except for this, his health had been good. Examination revealed a well-developed white man with a permanent tracheostomy in the suprasternal notch who spoke very well with an esophageal voice. The blood pressure was 180/80 mm. Hg and pulse rate 88. The abdomen was distended and tympanic, with no tenderness or rebound tenderness. Borborygmi were heard on auscultation. On rectal examination the rectal ampulla contracted around the examining finger.

The results of a complete blood cell count were within normal limits, the leukocyte count being 8,400, with a differential count of 62% segmented cells, 33% lymphocytes, and 4% monocytes. The electrocardiogram revealed a split P₂ wave compatible with mitral stenosis. Roentgen-ray examination by barium enema revealed the point of obstruction to be in the

descending colon with large gas-filled loops of colon and small intestine proximal to the point of obstruction (see figure).

Treatment consisted of continuous Wangenstein suction with a Miller-Abbott tube, Harris rectal flushes four times daily, complete restriction of oral intake, administration of fluids intravenously, and sedation. The use of suction on the Miller-Abbott tube withdrew large amounts of gas; the administration of the Harris rectal flushes caused expulsion of great quantities of flatus. During the first two days, a gradual de-



A, roentgen-ray film taken during barium enema showing point of intestinal obstruction in descending colon with proximal loops of intestine distended with air after prolonged swallowing of air. B, film taken after evacuation of barium enema showing markedly distended descending colon and small intestine proximal to the point of obstruction in the descending colon after swallowing of air.

crease in the degree of gaseous distension of the abdomen took place, and after five days the Miller-Abbott tube was withdrawn. The patient was discharged on the seventh day after his admission. Sigmoidoscopy, done as a follow-up study, revealed no abnormal condition, and the follow-up roentgen study by barium enema disclosed no abnormalities except a rather large descending colon.

160 East 74th St. (21).

ACUTE RETENTION OF THE FOLEY BAG CATHETER BALLOON

Henry Bodner, M.D.

Allan H. Howard, M.D.

and

Joseph H. Kaplan, M.D., Los Angeles

The Foley bag catheter, because of its simplicity, is an extremely valuable instrument for urologic purposes. However, the catheter has its trouble-making capacities. In addition to becoming obstructed, the balloon sometimes becomes exasperatingly difficult to deflate. The obstructive causes of bag retention are angulation, powder from gloves and other equipment, lint or cotton, blood clot, hemostatic crushing, or an imperfection (rubber flap over opening into the balloon or a bleb in the inflating tube) occurring in manufacture. To prevent such mishaps, one should test the catheter before using,

be certain catheters are not powdered and have not been stored with powdered goods, and instruct nurses to use fresh sterile water to inflate the balloon.

There are various means of deflating this catheter if difficulties should arise. It may be necessary to over-inflate the bag to the point of rupture. The 5 cc. bag frequently holds as much as 85 to 100 cc. of fluid before rupture, but in most instances 40 to 50 cc. of fluid is required. In the instance of hemostatic crushing, the inflating tube may be rolled between the fingers or the inflating tube and catheter may be cut off in sections until the urethra is approached. The injection of $\frac{1}{2}$ to 1 cc. of ether, xylene, or chloroform produces rupture of the balloon. The bladder must first be filled with fluid to dilute the irritating effects of the solvent.

To open up the obstructing rubber plug the ureteral catheter metal stylet may be passed along the inflating tube; the fluid will run out around the stylet. The metal stylet will not pass into the balloon itself because of the right angle opening of the inflating tube into the balloon. A Bugbee electrode may be passed alongside the catheter until resistance is felt against the overdistended balloon. The bladder should be filled with fluid and the fulgurating current turned on. This method is recommended for the 30 cc. balloon catheter, which may often be filled to 200 to 250 cc. before rupture will take place.

A whistle-tip ureteral catheter may be extended up to the balloon outside of the Foley bag catheter. Then a metal ureteral catheter stylet, previously measured, can be passed through the ureteral catheter to the balloon.

Another procedure involves cutting off the ends of the catheter and then passing a no. 28 F. resectoscope sheath over the catheter. A ureteral catheter metal stylet should be used inside of the resectoscope sheath and passed into the balloon. One may introduce a no. 16 F. or no. 21 F. cystoscope alongside a no. 24 F. catheter. The caliber of the catheter is compressed by the instrument. The balloon can be cut with a cystoscopic scissors or perforated with a rigid ureteral catheter metal stylet. A long thin needle passed through the abdominal wall and bladder just above the symphysis will perforate a balloon that has been distended to over 200 cc. of fluid. The 75 cc. bag may be distended in some instances to as high as 1,660 cc. before it will rupture.

When the catheter is removed, it should be inspected for missing pieces of rubber. One of our patients voided a piece of rubber nine months after a transurethral prostatectomy. The lost piece of rubber may be found in the dome of the bladder, since it floats on top of the urine or water. It is recommended that the manufacturers have two openings in the inflating tube into the balloon at the same site instead of in tandem. In the event one of the openings becomes plugged, drainage will be through the other opening. With the openings in tandem, if the distal opening becomes plugged, then the proximal opening of the catheter is not of any help. The opening into the balloon from the inflating tube if made at an angle may allow the passage of a ureteral catheter metal stylet into the balloon and thus make rupture of the balloon easy. A small pinpoint opening with slow deflation will be less apt to cause acute rupture with loss of the rubber in the bladder.

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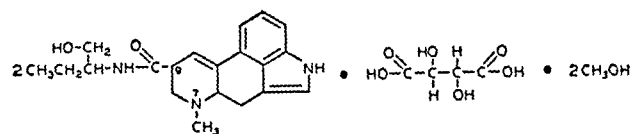
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., Secretary.

Methyletergonovine Tartrate.—Methergine Tartrate (Sandoz).— $(C_{20}H_{25}N_3O_2)_2 \cdot C_4H_9O_6 \cdot 2CH_3OH$.—M.W. 893.02.—N-[α -Hydroxy-methyl]propyl]-*d*-lysergamide tartrate containing two molecules of methanol of crystallization.—*d*-Lysergic acid-*d,l*-hydroxybutylamide-2 tartrate containing two molecules of methanol of crystallization.—The structural formula of methyletergonovine tartrate may be represented as follows:



Actions and Uses.—Methyletergonovine tartrate, a partially synthesized derivative of ergonovine maleate, is similar in action to the parent compound and other oxytocic alkaloids of ergot. See New and Nonofficial Remedies under the general statement on oxytocics and the monograph on ergonovine maleate.

Methyletergonovine tartrate induces uterine contractions in the immediate period after placental expulsion and in the puerperium by either parenteral or oral administration (within 30 to 60 seconds after intravenous injection, 2 to 5 minutes after intramuscular injection, and 3 to 5 minutes after oral administration). Clinical observations indicate that the intensity and duration of its oxytocic effect is somewhat greater than that of ergonovine maleate, but less prolonged than that of ergotamine tartrate.

Methyletergonovine tartrate is indicated for administration at the end of the third stage of labor or cesarean section to prevent or combat postpartum uterine atony and hemorrhage. It appears to have less tendency to produce pressor effects than does ergonovine and, therefore, may be suitable for use in the presence of preeclampsia or eclampsia. The drug also may be used to treat subinvolution and to combat secondary puerperal hemorrhage in conjunction with the removal of intrauterine clots. Its use in the presence of uterine infection is open to question.

Methyletergonovine tartrate is contraindicated during pregnancy and should not be employed routinely prior to delivery of the placenta; when used under full obstetric supervision, it may be given in the second stage of labor following delivery of the anterior shoulder. It shares the general toxic effects of ergot alkaloids that may result from overdosage or prolonged administration. Caution should be exercised in administering the drug to patients with sepsis and serious hepatic or renal involvement.

Dosage.—Methyletergonovine tartrate is administered orally, intramuscularly, or intravenously. Injection should be used immediately following delivery of the anterior shoulder or the placenta. A single dose of 0.2 mg. is injected intramuscularly or intravenously at the end of labor. If atony and hemorrhage persist post partum, further injections of the same dose may be given at intervals of 2 to 4 hours. A dose of 0.2 mg. may be given orally three or four times daily in treating subinvolution or during postpartum convalescence in place of the parenteral route.

Tests and Standards.—

Physical Properties: Methyletergonovine tartrate is a white to pinkish-tan, odorless, bitter, microcrystalline powder. It is very soluble in water, freely soluble in alcohol, and very slightly soluble in chloroform and in ether. Methyletergonovine tartrate must be protected from light and heat. The pH of a 0.02% solution is 5.0-5.8.

Identity Tests: Dissolve about 4 mg. of methyletergonovine tartrate in 6 ml. of water. The solution exhibits a bluish fluorescence under ultraviolet light. Divide the solution into two equal portions. To one portion add 2 ml. of a 1:1 mixture of glacial acetic acid and ethyl acetate. Stratify 2 ml. of sulfuric acid under the mixture: a bluish-purple ring appears at the zone of contact of the two liquids. To the second portion add 2 ml. of *p*-dimethylaminobenzaldehyde T.S.: a deep blue color appears.

The specific rotation, $[\alpha]_{25}^D$, of a 1% solution in water is +50 to +60°.

A 0.002% solution, prepared as directed in the spectrophotometric assay for methyletergonovine tartrate, exhibits an ultraviolet absorption maximum at about 310 m μ [specific absorbancy, $E(1\%, 1\text{ cm.})$, about 191], and a minimum at about 270 m μ .

Purity Tests: Dissolve about 0.25 gm. of methyletergonovine tartrate in 25 ml. of water. Add 5 ml. of diluted nitric acid and mix. Separate 10 ml. portions of the mixture yield no turbidity on addition of 0.5 ml. of silver nitrate T.S. (absence of chloride) and no turbidity on addition of 1 ml. of barium chloride T.S. (absence of sulfate).

Dry about 1 gm. of methyletergonovine tartrate, accurately weighed, in a vacuum desiccator over phosphorus pentoxide for 4 hours: the loss in weight does not exceed 5.0%.

Char about 0.5 gm. of methyletergonovine tartrate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.05%.

Assay: (Methyletergonovine Tartrate) Prepare a 0.002% solution of methyletergonovine tartrate as follows. **Caution:** Protect all solutions of methyletergonovine tartrate from light, preferably by using low actinic glass. Transfer to a 1,000 ml. volumetric flask 0.1 gm. of methyletergonovine tartrate, accurately weighed, fill to the mark with 1% v/v sulfuric acid, and mix. Transfer to a 100 ml. volumetric flask 20 ml. of this solution, fill to the mark with the 1% sulfuric acid, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 310 m μ , using 1% sulfuric acid as a blank. The concentration of methyletergonovine tartrate in the solution in mg./ml. = absorbancy $\div$ 19.1. The amount of methyletergonovine tartrate is not less than 95.0 nor more than 105.0%.

(Methyletergonovine) With the aid of 10 ml. of water transfer to a 125 ml. separatory funnel about 0.1 gm. of methyletergonovine tartrate, accurately weighed. Add 3 ml. of strong ammonia solution and 50 ml. of a saturated solution of sodium chloride. Extract the mixture with eight 25 ml. portions of ether. Collect the ether extracts in a 250 ml. beaker and evaporate them on a steam bath to about 2 ml. Add 25 ml. of 0.02 N sulfuric acid, accurately measured, and warm on a steam bath until the solids are completely dissolved and no odor of ether is detectable. Cool, add 20 ml. of water, and titrate the solution with 0.02 N sodium hydroxide, using bromophenol blue T.S. as an indicator. Run a blank titration using 200 ml. of ether. Each milliliter of 0.02 N acid consumed is equivalent to 0.006788 gm. of methyletergonovine and 0.008930 gm. of methyletergonovine tartrate. The amount of methyletergonovine is not less than 74.5 nor more than 77.5%, equivalent to not less than 98.0 nor more than 102.0% of methyletergonovine tartrate.

Dosage Forms of Methyletergonovine Tartrate

SOLUTIONS. **Physical Properties:** The pH of the solution is 3.5-4.5.

Identity Tests: The solution responds to the fluorescence and color identity tests for the active ingredient in the monograph for methyletergonovine tartrate.

The 0.002% solution prepared as directed in the assay responds to the spectrophotometric identity test for the active ingredient in the monograph for methyletergonovine tartrate.

Assay: (Methyletergonovine Tartrate) **Caution:** Protect all solutions of methyletergonovine tartrate from light, preferably by using low actinic glass. Transfer to a 100 ml. volumetric flask an amount of solution, accurately measured, equivalent to about 2 mg. of methyletergonovine tartrate, fill to the mark with 1% v/v sulfuric acid, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 310 m μ , using the 1% sulfuric acid as a blank. The concentration of methyletergonovine tartrate in the solution in mg./ml. = absorbancy $\div$ 19.1. The amount of methyletergonovine tartrate is not less than 95.0 nor more than 105.0% of the labeled amount.

TABLETS. **Identity Tests:** Transfer to a 125 ml. separatory funnel an amount of powdered tablets equivalent to about 4 mg. of methyletergonovine tartrate. Add 20 ml. of water and make the mixture alkaline to litmus with diluted ammonia solution. Extract the mixture with one 20 ml. portion of chloroform and filter the chloroform extract into a small evaporating dish. Evaporate the chloroform on a steam bath, and dissolve the residue in 6 ml. of water and 0.3 ml. of diluted hydrochloric acid. Filter the solution, if necessary. The solution responds to the fluorescence and color identity tests for the active ingredient in the monograph for methyletergonovine tartrate.

The 0.002% solution prepared as directed in the assay responds to the spectrophotometric identity test for the active ingredient in the monograph for methylergonovine tartrate.

Assay: (Methylergonovine Tartrate) Weigh 30 tablets and powder them. **Caution:** Protect all solutions of methylergonovine tartrate from light, preferably by using low actinic glass. Transfer to a 100 ml. volumetric flask an amount of powder, accurately weighed, equivalent to about 2 mg. of methylergonovine tartrate, add 50 ml. of 1% v/v sulfuric acid, and shake the flask mechanically for 15 min. Fill to the mark with the 1% sulfuric acid and mix. Centrifuge a portion of the mixture. Spectrophotometrically determine the absorbancy of the supernatant solution in a 1 cm. quartz cell at 310 m μ , using 1% sulfuric acid as a blank. The concentration of methylergonovine tartrate in the solution in mg./ml. = absorbancy $\div$ 19.1. The amount of methylergonovine tartrate is not less than 95.0 nor more than 105.0% of the labeled amount.

Sandoz Pharmaceuticals, Division of Sandoz Chemical Works, Inc., New York.

Solution Methergine Tartrate: 1 cc. ampuls. A solution containing 0.2 mg. of methylergonovine tartrate in each cubic centimeter.

Tablets Methergine Tartrate: 0.2 mg. U. S. patent 2,265,207. U. S. trademark 400,893.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., Secretary.

Fortiphone Hearing Aid, Model 22

Fortiphone Limited, Fortiphone House, 247 Regent St., London, W.1, England.

Distributor: Anton Heilman, 75 Madison Ave., New York 16.

The Fortiphone Hearing Aid, Model 22, uses three vacuum tubes, one 1.5 volt mercury type A-battery, and one 30 volt B-battery. The body of the instrument measures 80 by 48 by 20 mm. and weighs, with batteries, 155 gm.

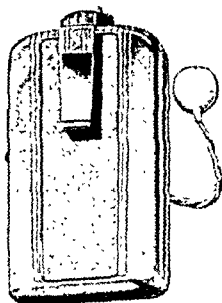
The Council secured evidence from acceptable sources indicating that the workmanship of the instrument was sound and that its performance was satisfactory.

Sonotone Hearing Aid, Model 977

Sonotone Corporation, Elmsford, N. Y.

The Sonotone Hearing Aid, Model 977, is a three tube instrument powered by one A-battery (1.5 volt mercury) and one B-battery (30 volt zinc-carbon). This instrument may also be used with a 22 volt B-battery and an adapter, as an alternative to the 30 volt battery. A choice of five receivers is offered. The total weight of the instrument with batteries, receiver cord, and receiver depends on this choice and ranges from 175.6 to 188.2 gm.

The instrument has a feature referred to either as a "self-control" noise suppressor, or automatic volume control (AVC). This volume-limiting control limits the maximum level of output to a choice of one of three levels regardless of the input.



Sonotone Hearing Aid,
Model 977

Evidence from acceptable sources indicated that the instrument was satisfactory in construction and operation.

Technicon-Huxley Chest-Abdomen Respirator Pump and Cuirasses

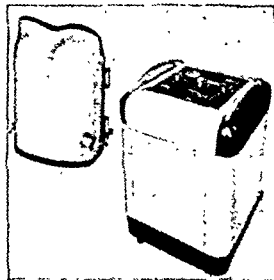
Conitech, Ltd., 215 E. 149th St., New York 51, N. Y.

The Technicon-Huxley Chest-Abdomen Respirator Pump and Cuirasses are intended for use in artificial respiration, particularly in poliomyelitis. The assembly consists of a set of four cuirasses, a power unit mounted on casters, and a flexible pipe or hose. The four cuirasses represent a range of sizes from child to adult. The edges of the cuirasses, which maintain air-tight contact with the patient's skin, are made of a spongy material resembling foam rubber. The pump is electrically driven, requires 60 cycle alternating current at 110 volts, and draws 175 watts.

The respirator is shipped in two crates, measuring 76 by 46 by 46 cm. (30¼ by 18½ by 18½ in.) for the power unit, and 64 by 45 by 69 cm. (25½ by 18 by 27½ in.) for the cuirasses. The former weighs 50 kg. (110 lb.); the latter, 23 kg. (50 lb.). Unpacked, the power unit measures 60 by 39 by 40 cm. (24 by 15½ by 16 in.) and weighs 43 kg. (95 lb.).

The frequency can be adjusted between 12 and 26 respirations per minute. The stroke volume is about 1,100 cc. Negative pressure can be controlled up to 40 cm. water; positive pressure can also be applied.

Evidence indicating sound construction and satisfactory operation was obtained from sources acceptable to the Council.

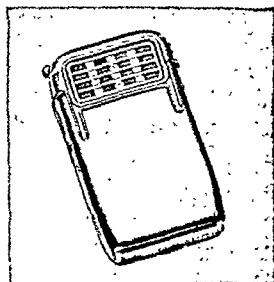


Technicon-Huxley Chest-Abdomen
Respirator Pump and Cuirass

Sonotone Hearing Aid, Model 1010

Sonotone Corporation, Elmsford, N. Y.

The Sonotone Hearing Aid, Model 1010, has two vacuum tubes, one transistor, a 1.25 volt A-battery, and a 15 volt B-battery. The body of the instrument, which is extremely thin, measures 76 by 43 by 15 mm. and weighs 75 gm. The two batteries weigh 23 gm., and the earphone with receiver cord weighs 11 gm., bringing the total weight to 109 gm. The Council obtained evidence indicating satisfactory construction and operation.



Sonotone Hearing Aid,
Model 1010

Normatone Hearing Aid, Model D-53

Johnston Hearing Aid Mfg. Co., 708 W. 40th St., Minneapolis 8.

Distributor: Normatone Hearing Aid Company, 22 E. Seventh St., St. Paul 1.

The Normatone Hearing Aid, Model D-53, has three vacuum tubes and is powered by two zinc-carbon batteries: an A-battery supplying 1.5 volts, and a B-battery supplying 22.5 volts. The body of the instrument is enclosed in a case made of a thermoplastic substance, measures 83 by 57 by 20 mm., and weighs 81 gm. With earphone, receiver cord, and the two batteries the total weight is 141 gm. There is no adjustable tone control and the volume control includes the off-on switch.

The Council obtained evidence indicative of satisfactory construction and operation.



Normatone Hearing Aid,
Model D-53

THE JOURNAL

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THE RABIES PROBLEM

An outbreak of rabies in Chicago has emphasized the importance of mustering all knowledge of the disease and its control for a realistic attack on the problem. Unfortunately it is commoner than generally believed. Furthermore, it is found in many animals other than dogs and foxes, including cattle, skunks, cats, horses, squirrels, sheep and other warm-blooded creatures.

Rabies is one of the oldest diseases known to mankind. It was mentioned in the Pre-Mosaic codes of Biblical peoples and described with amazing accuracy by Democritus, Aristotle, and Celsus. The causative agent was first found in the saliva of rabid dogs by Zincke in 1804, and a few years later Magendie and Bouchet were able to infect dogs with the saliva from human patients with this disease. The greatest contribution to the knowledge of rabies was the classical work of Pasteur with his famous nerve tissue studies and the modification of the virus by continuous passage, which led to the first effective vaccine.

Although the disease spread through every country of Europe in the 18th century, Norway, Sweden, Denmark, and the British Isles were able to eliminate the disease by ruthless sanitary measures, and importation quarantine enforcement has kept them rabies-free to this day. It was first recorded in what is now the United States in 1753 and soon spread westward with the growth of the nation. The disease is ubiquitous. Climate and season have no influence on its occurrence. It is found in the Arctic regions as well as the tropics of the old and new worlds. The infection depends entirely on the entrance of virus-laden saliva into a wound generally inflicted by the bite of the rabid animal. Attack rates in this disease depend on (1) the presence and amount of virus in the saliva of the biting animal; (2) the location of the bite on the body (bites around the head, neck, and face are the most dangerous; around the hands, feet, arms, and legs next in importance; and on the trunk least important); (3) the multiplicity of the bites; (4) the depth of the bite; and (5) the interposition of clothing. These factors should be considered in decisions on the intensity of vaccine treatment required. The rabies virus is an extremely labile organism and loses its virulence rapidly when exposed to light, heat, and drying.

Thus, fomites or indirect exposure by contaminated objects are of no real significance, because the virus is destroyed so easily in the atmosphere. The diagnosis is confirmed by the demonstration of Negri bodies in the brain of the suspected animal or by isolation of the rabies virus in the mouse after intracerebral inoculation of the mouse with emulsified brain tissue from the suspected animal. A recent advance in diagnostic techniques is the isolation of virus from the salivary glands. This procedure will indicate whether a bite has entailed a definite risk because rabies virus is shed in the saliva of only 50 to 75% of animals proved rabid.

On the basis of advances in rabies research, the World Health Organization (WHO) Expert Committee on Rabies has made some pertinent recommendations regarding the treatment of exposed persons as well as on the control of the disease. Bite wounds should be cleansed with soap or detergent solution. The use of strong mineral acids (e. g., nitric acid) may be resorted to in the case of a deep puncture type of bite wound that cannot be efficiently cleansed with soap or detergent solution. A review of indications for specific treatment with rabies vaccine is given in a chart prepared by the WHO Expert Committee dealing with intensity of treatment schedules based on the nature of the exposure and the clinical condition of the biting animal. In this connection, it is of paramount importance to capture and impound the biting animal for clinical observation whenever possible.

Antirabic inoculations are not without danger, and attention has been repeatedly called to the hazard of post-rabies vaccinal paralysis in children who are subjected to the heavy doses of antirabies vaccine required when face bites occur. Recently a report of 14,119 persons given vaccine for rabies in Hong Kong showed that only 17 suffered temporary paralysis of a muscle after the inoculations, or an incidence of 1.2 per thousand persons inoculated.

A new development in the specific biological treatment of exposed persons is the use of hyperimmune anti-rabies serum. Growing experimental evidence of the value of antirabies hyperimmune serum has prompted the committee to recommend that serum followed by the usual course of vaccine be used in cases of severe human exposure. One serum injection with 0.5 ml. per kilogram of body weight should be given within 72 hours of the bite or sooner. Hyperimmune serum is not yet available commercially, but some health departments have access to it on a field experimental basis.

Experience has shown that sound local rabies control programs should include the following minimum requirements: 1. Mass immunization of dogs. This should be carried out intensively on a schedule that aims at the vaccination of all owned dogs within the shortest possible time. In the face of a serious outbreak at least 70% of the entire dog population of the county should be vaccinated within a two to three week period. 2. Elimination of all stray dogs. Mass immunization will not reach the stray or ownerless dog, which remains as a potential threat in transmission of rabies. An efficiently conducted

program requires the operation of a local pound or humane shelter where stray animals may be kept for a few days and, if unclaimed at the end of that period, destroyed humanely. Collection of strays should be carried out by teams of dog wardens and assistants in properly equipped trucks. Licensing or registration of all dogs is an important adjunct of a successful program. If properly enforced, it identifies the ownerless strays, helps to defray the expenses of control activities, and assures a reasonably accurate dog census. 3. Reduction of excess numbers of wildlife vectors. Outbreaks of rabies in wild animals, particularly foxes, occur generally when the population of the species becomes particularly dense in an area. Organized county-wide trapping programs are the most effective means of reducing this overpopulation to a safe level in areas menaced by fox rabies.

Other important measures are restraint of dogs while the control campaign is under way and pursuit of a continual and energetic publicity campaign. Essential to the success of the program is good organization under health department and veterinary medical auspices, with the fullest use of all technical resources in the community. The most significant single advance in rabies control in the past few years is the successful use of canine prophylactic vaccination. Laboratory and field demonstrations have shown that mass immunization of dogs is an essential phase of a successful rabies control program. Recent experimental work has shown that live modified virus vaccine (Flury strain) prepared from chicken embryos produces superior immunity in dogs that lasts for at least three years after a single intramuscular inoculation.

PATHOGENICITY OF *ESCHERICHIA COLI*

Diarrhea in infancy is still an important cause of death in the first few weeks of life and is the scourge of hospital nurseries. In addition to the causes that have long been recognized, a great mass of evidence has been accumulating in recent years that would indicate that although most strains of *Escherichia coli* are harmless there are strains (notably 0111 and 055; others less frequently) that may cause severe diarrhea in infants and adults and in infants may even cause death.¹ This evidence at first was based on the finding that one of these strains predominated in the stools of the affected infants but not in those unaffected; that an outbreak coincided with the introduction into a nursery of organisms of the serogroups 0111 (or 055, 026, etc.) and ceased with the disappearance of this strain from the nursery. It is a characteristic of this disease that it is severe in the very young, is highly contagious, and tends to recur both clinically and bacteriologically.

In order to determine whether there was other than the epidemiological evidence mentioned for the pathogenicity of these strains of *Esch. coli* serological tests were made.² Since there was no antibody response in infants after an attack of diarrhea associated with strains 0111 and 055 in the stools, a hemagglutination test was developed and it was found that volunteers who ingested cultures of strain 055 responded with an increase in titer

of homologous *Esch. coli* hemagglutinin. These same volunteers did not show an increase in titer to heterologous *Esch. coli* hemagglutinin. Other volunteers acting as controls who ingested innocuous strains did not show any increase in titer of *Esch. coli* 055 hemagglutinin. In volunteers who ingested cultures of strains 0111 or 055 mild to severe diarrhea developed, but this did not occur in the control subjects. H as well as O strains of this serogroup should be included in epidemiological studies.^{1c}

The exact mode of transmission of this infection is not known. The presumably pathogenic strains have been cultured from feces, rectal swabs, nasopharyngeal swabs, furniture, towels, rubber nursing nipples, and the hands of nurses.³ Cross infection on wards has been observed frequently, and carriers have been found among adults. In one nursery in which an epidemic occurred it was found that the babies were taken to their mothers in a vehicle used by all, the bathing table was used in common by sick and well babies, and a common container held all the rectal thermometers.^{1d} More careful control of ward sanitation usually checks epidemics. Failure of these measures to do so may be due to inadequate control procedures or to a failure to attack the true mode of spread, which may be alimentary, respiratory, or both.³

Chlortetracycline, oxytetracycline, and chloramphenicol have been used successfully to suppress *Esch. coli* 0111 and 055 in the stools. This always leads to clinical improvement, thereby adding another link to the chain of evidence of the pathogenicity of these organisms.⁴ Chloramphenicol-resistant strains have been observed after treatment with this drug, and persons with cross infections in one study^{1a} were all found to harbor chloramphenicol-resistant organisms. On the other hand, neomycin was found to cure the infected infants in one epidemic without producing neomycin-resistant strains, and in this epidemic there were no deaths.

It may be concluded that epidemic diarrhea in infants is still a serious disease, which may be produced by a variety of organisms. There is strong evidence that certain serogroups of the usually innocuous *Esch. coli* may cause serious and even fatal disease in infants. The causative organism in epidemics of infantile diarrhea should be determined, and in such determinations the possibility that this may be a pathogenic strain of *Esch. coli* should not be overlooked.

1. (a) Wheeler, E., and Wainerman, B.: The Treatment and Prevention of Epidemic Infantile Diarrhea Associated with *Escherichia Coli* 0111 by the Use of Chloramphenicol and Neomycin, *A. M. A. Am. J. Dis. Child.* 86: 350-353 (Sept.) 1953. (b) Taylor, J., and Charter, R. E.: The Isolation of Serological Types of *Bact. Coli* in Two Residential Nurseries and Their Relation to Infantile Gastroenteritis, *J. Path. & Bact.* 64: 715-728 (Oct.) 1952. (c) Wright, J., and Roden, A. T.: *Escherichia Coli* 0 55 B 5 Infection in a Gastroenteritis Ward: Epidemiological Applications of H Antigen Type Determinations, *Am. J. Hyg.* 58: 133-147 (Sept.) 1953. (d) Neter, E.; Korns, R. F., and Trussell, R. E.: Association of *Escherichia Coli* Serogroup 0111 with Two Hospital Outbreaks of Epidemic Diarrhea of the Newborn Infant in New York State During 1947, *Pediatrics* 12: 377-383 (Oct.) 1953.

2. Neter, E.; Zalewski, N. J., and Ferguson, W. W.: *Escherichia Coli* Hemagglutinin Response of Adult Volunteers to Ingested *E. Coli* 055 B₅, (20070), *Proc. Soc. Exper. Biol. & Med.* 82: 215-219 (Feb.) 1953.

3. Infantile Gastro-Enteritis, editorial, *Lancet* 2: 323-325 (Aug. 16) 1952.

4. Neter, E.; Webb, C. R.; Shumway, C. N., and Murdock, M. R.: Study on Etiology, Epidemiology, and Antibiotic Therapy of Infantile Diarrhea, with Particular Reference to Certain Serotypes of *Escherichia Coli*, *Am. J. Pub. Health* 41: 1490-1496 (Dec.) 1951.

ORGANIZATION SECTION

RHODE ISLAND MEDICAL SOCIETY

To permit readers of THE JOURNAL to become better acquainted with the activities of state medical associations articles describing them will appear from time to time in these pages.—ED.

The Rhode Island Medical Society was established in 1812. Dr. Robert Jeffreys, holder of the earliest license granted in Rhode Island, was in 1641 "authorized to exercise the function of Chirurgie." The first medical degree conferred in any of the colonies was that bestowed on Capt. John Cranston in 1664 by act of the colonial legislature, which reads: "Whereas the Court hath taken notice of the great blessing of God on the good endeavors of Captayne John Cranston of Newport, both in phissicke and chirurgery, to the great comfort of such as have had occasion to improve his skill and practice etc. The Court doe therefore unanimously enacte and declare that the said Captayne John Cranston is lycenced and commistioned to administer phissicke, and practice chirurgery throughout this whole Collony and is by this court styled and recorded Doctor of phissicke and chirurgery by the authority of this the Gen-



Headquarters of Rhode Island Medical Society.

eral Assembly of this Collony." During the following century, according to records uncovered by the late Dr. W. S. Sherman, Dr. William Hunter of Newport delivered in January and February, 1755, the first advertised public course of medical lectures given in the colonies. Shortly after the beginning of the next century, Rhode Island College, to which Nicholas Browne Jr. had given \$5,000, became Brown University and, in accordance with its charter rights, conferred the M.D. degree on Solomon Drowne. In 1811 its school of medicine was opened. Lacking endowment, library, laboratories, and clinics, it nevertheless had three professors, each with a chair of his own: Dr. Drowne, materia medica and botany; Dr. William Ingalls, anatomy and surgery; and Dr. William Corlis Bowen, "chymistry."

One year later the medical society, strongly advocated by these men and several of their contemporaries, came into being. Forty-nine men from all sections of the state signed the act of incorporation, and Dr. Amos Throop became the first president of the Rhode Island Medical Society. The largest number of founders came from Providence (14) and Newport (7), and these cities were designated as host to the annual meeting in alternate years. In "Early Medical History in Rhode Island and the Rhode Island Medical Society," the late Dr. Walter L. Munro pointed out: "The meetings were held at various places but especially in the Colony House at Newport and the old State House in Providence. There was, of course, a dinner or at least a luncheon. Going over the old records, one is led to infer that

the privilege of providing (and paying for) the banquet was one of the perquisites of the President in office. Dr. Eldredge hints delicately that it seemed to him at times that the attendance at the dinner was even larger than at the meeting." In 1846 the meetings became semiannual, the place of the midyear meeting being determined by vote, and in 1866 quarterly, the annual meeting being held in Providence in June.

In legislative and civic projects, in the furtherance of medicine and public health, the society has a brilliant history of achievement. In 1800 a Newport physician, Dr. Benjamin Waterhouse, introduced vaccination to this country, and 56 years later Dr. Edwin M. Snow made Providence one of the first cities in the United States to require vaccination against smallpox as a qualification for school enrollment. Dr. Levi Wheaton, a surgeon in the Revolutionary War, and Dr. Joseph Mauran, early presidents of the society, led the fight against Asiatic cholera, which first appeared in the United States in 1832, and it was through their efforts and the petitions of the society that Providence became one of the first cities in the nation to have a full-time superintendent of health. Dr. Usher Parsons, president of the society 1837-1840 and the only surgeon entrusted with the treatment of the wounded in Commodore Oliver Hazard Perry's naval battle at Lake Erie, initiated the movement that finally resulted in the erection of Rhode Island Hospital in 1868. In 1871, through the efforts of the society's legislative committee, the legislature passed the law requiring the examination and registration of pharmacists and creating the Board of Pharmacy, and 13 years later the society was instrumental in obtaining passage of the Medical Examiner Act, which did away with most of the abuses, inadequacies, and delays of the old coroner system. In the interim, long agitation by the society for a state board of health had finally culminated in success, and subsequently Rhode Island became the first state health department to undertake the work of free examination of sputum for the diagnosis of tuberculosis under the direction of the medical profession. In 1894, after a 16 year struggle, a law governing the registration of physicians and regulating the practice of medicine was passed—a crowning achievement for the society—and in 1885 a board of medical examiners was created, which provided adequate oral and written tests of the applicant's ability. Originating too in the Rhode Island Medical Society were such institutions as the sanatorium at Wallum Lake (1906), the School for the Feeble-Minded (1907), and the Providence City Hospital (1910).

A widely known project of the society is the annual competition for the Fiske Fund prize, established in 1835 by Dr. Caleb Fiske, fourth president of the society—country doctor, hospital surgeon, judge of the common pleas court, banker, and financier. Dr. Fiske provided that nine-twelfths of the income of the fund be devoted to a prize to be given annually to the best essay on a subject or subjects to be assigned by the trustees, and that two-twelfths be set aside as remuneration for the trustees, adding "And it is also believed that said trustees . . . will frequently, if not *uniformly*, render their service gratuitously, whereby a further addition may be made to said fund." Under this proviso the fund has increased many fold, and the prize, originally \$40, is now \$250.

Need for the headquarters of the society was felt long before the building itself materialized. The first donation toward a building fund, a gift of \$500, was made in 1882. In 1887 the General Assembly granted the right to hold property up to \$100,000 in value, but it was only when faced with the necessity of removing its books from the public library that the society was finally goaded into action. On June 1, 1911, 99 years after the founding of the society, the cornerstone was laid, and one year later the building was formally dedicated and opened with ceremonies at which Dr. Abraham Jacobi, President of the American Medical Association, gave the principal address. The

building, at 106 Francis St., Providence, was dedicated as a state medical library, owned and maintained by the society. Its 38,000 bound volumes and journals, in charge of a full-time librarian and assistant, are housed for reference by the citizens of Rhode Island. It has a fine reading room and an ample auditorium that serves as the meeting place for the society and for the Providence Medical Association. In July, 1942, the society created a central office at the Medical Library with a full-time executive secretary in charge. The *Rhode Island Medical Journal* has been issued under the direction of the society since 1917. Officers of the society are Dr. Earl F. Kelly, Pawtucket, president; Dr. Henri E. Gauthier, Woonsocket, president-elect; Dr. Herbert E. Harris, Providence, vice-president; Dr. Thomas Perry Jr., Providence, secretary; Dr. John A. Dillon, Providence, treasurer; and John E. Farrell, Sc.D., Providence, executive secretary. The approximately 800 members of the society represent seven constituent medical associations, which include the cities of Providence, Pawtucket, and Woonsocket, and the counties of Bristol, Kent, Newport, and Washington.

A. M. A. VIEWS ON H. R. 7341

February 3, 1954

The Honorable Charles A. Wolverton, Chairman
Committee on Interstate and Foreign Commerce
United States House of Representatives
Washington 25, D. C.

Dear Sir:

I would like to take this opportunity, on behalf of the American Medical Association, to submit for your consideration our views concerning H. R. 7341, 83d Congress, which is currently being studied by your Committee.

It is our understanding that this bill would amend the Hospital Survey and Construction Act, as amended, so as to provide assistance to the states in surveying the need for and in constructing diagnostic or treatment centers, hospitals for the chronically ill, rehabilitation facilities and nursing homes.

When the Hospital Survey and Construction Act, familiarly known as the Hill-Burton Act, was before the 79th Congress it was studied very carefully by the House of Delegates, the Board of Trustees and by several councils of the American Medical Association. As a result of that study, the intent and purposes of the legislation received our approval. The Association has continued to support the law since its enactment on August 13, 1946.

We are gratified to note that since the approval of the first projects in fiscal year 1948 approximately 50,000 hospital beds have been constructed under this program. In addition, approximately 45,000 additional hospital beds are now under construction. Apparently rapid progress has been made; projects have been allocated for areas where they are most needed and are being put into service with commendable promptness.

It appears from the language of the pending bill that the proposed extension of federal assistance to the states in connection with the construction of medical facilities other than hospitals will be experimental in nature. The definitions of "diagnostic or treatment centers," "rehabilitation facilities" and "nursing homes" contained in the bill are general in nature and will be subject to more definitive treatment through federal administrative regulations at a later date. These facts plus the lack of recognized standards for these facilities will place a serious responsibility upon the Department of Health, Education and Welfare to promulgate regulations which will preserve maximum local autonomy and administrative responsibility.

Our primary recommendations with respect to this measure are that facilities for the chronically ill and impaired should be part of, or near a conventional hospital and that the original purpose of the Hospital Survey and Construction Act be reaffirmed. As you know, the original Act of 1946 and the amendment of October 25, 1949, both emphasized that the purpose of the Act was to assist the states in providing hospitals and "similar services to all their people." We believe it is imperative that any facilities constructed under this proposal should also be available for the use and benefit of the entire community

rather than for any particular segment of the population. To insure this result it is our opinion that the original purpose of the Act should be restated.

The pending bill has not been officially considered by our House of Delegates or Board of Trustees; however, it does not appear that the proposed expansion of the program constitutes any fundamental change in the principles embodied in the existing law. I should like to urge therefore, on behalf of the American Medical Association, that the subject legislation be reported favorably by your Committee, subject to the amendments indicated.

Sincerely,

GEORGE F. LULL, M.D.
Secretary and General Manager.

THE SAN FRANCISCO MEETING

This year in San Francisco the annual meeting of the American Medical Association will be held from June 21 to 25. General meetings will occupy the program all of Monday and also Tuesday morning. One half of the sections will meet Tuesday, Wednesday, and Thursday afternoon and one half on Wednesday, Thursday, and Friday morning. All meetings except those of the ophthalmology section and the Wednesday evening meeting (to be held in the Terrace Room of the Fairmont Hotel) will be held in a group of buildings in the Civic Center. The Section on Miscellaneous Topics will include a session on legal medicine for the first time. The telecasting of clinics and operations will be in color, will originate in the San Francisco General Hospital, and will be shown on two 4 by 6 foot screens. The latest and best medical motion pictures will be shown throughout the week. Because of the success of the evening showing of motion pictures at the St. Louis meeting, the world premiere showing of some outstanding films of broad general interest (titles to be revealed later) will take place at the Wednesday evening meeting, with a discussion of each of these new films.

In the Scientific Exhibit in the Civic Auditorium there will be about 220 exhibits grouped according to the Sections of the Scientific Assembly. Features of outstanding interest will include special exhibits on fractures and blood banks. Among other special exhibits will be fresh pathology, sponsored by the Section on Pathology and Physiology; "Preceptorships in Undergraduate Medical Education for General Practice" by the Section on General Practice; and "Pulmonary Function Testing" by the Section on Diseases of the Chest. There will be a question and answer conference on cardiovascular diseases in cooperation with the American Heart Association and a "quiz corner" conducted by the editorial department of the A. M. A. where physicians may bring their problems to various experts in the different fields of medicine.

In the Technical Exposition about 400 firms will bring to the attention of physicians the latest developments in new drugs, books, and other adjuncts to the practice of medicine. A portico covering nearly 40,000 square feet will be erected over the street in front of the auditorium.

TELEVISION PROGRAMS

Dates for three new "March of Medicine" television programs have been announced by Smith, Kline and French Laboratories and the American Medical Association. The first program will be on March 11 over the National Broadcasting Company's television network; other programs will be on April 29 and June 24. Like the 1953 series, the new "March of Medicine" programs will be presented at 10 p. m. (EST), replacing the "Martin Kane" show usually seen at that time.

On March 11, "March of Medicine" will bring TV viewers up-to-date on the subject of overweight. The program will include scientific discussions on the cause of obesity and practical solutions to the weight-gaining problem. Arthritis and rheumatism is the topic for the April 29 show. Subject matter for the June 24 program, to originate from the American Medical Association's Annual Meeting in San Francisco, is still to be assigned.

REQUESTS FOR PLACEMENT AID

More physicians are utilizing the services offered by the A. M. A. Physicians Placement Service than ever before, reports the Council on Medical Service. A brief look at the number of services rendered by the Placement Service during the last three months of 1953 as compared with the same period of 1952 shows: (1) a 95% increase in the number of requests from communities seeking physicians; (2) a 130% increase in the number of letters of inquiry from physicians seeking places to locate; and (3) a 364% increase in the number of physician visits and personal interviews in the A. M. A. office. The A. M. A. Physicians Placement Service operates in close cooperation with the 43 state physician placement services.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 51 of the Quarterly Cumulative Index Medicus, covering literature for the first half of 1952, has been mailed to subscribers and is now available for purchase from the Order Department of the American Medical Association. At present, volume 52 (covering literature for the period July-December, 1952) is in press, but it will not be ready for distribution for several months.

FEDERAL MEDICAL LEGISLATION

Appropriations for Office of Vocational Rehabilitation

Senator Kefauver (D., Tenn.) in S. 2837 proposes to amend the Appropriations Act of 1954 to delete the provision limiting the federal share to \$1 for each 75 cents contributed by the state for its Vocational Rehabilitation service. The bill was referred to the Appropriations Committee.

Federal Board of Hospitalization

Congressman Evins (D., Tenn.) proposes in H. R. 7474 to establish a Federal Board of Hospitalization, to be composed of seven government officials from various parts of the executive branch of the government. This board would study federal hospital activities and make recommendations (1) "To prevent overlapping, duplication, and overbuilding of such facilities; (2) to insure the most efficient and complete utilization of the total hospital, convalescent, and domiciliary facilities of the Federal Government by each department and agency; (3) to determine the need for existing or additional hospital, convalescent, and domiciliary facilities of each department and agency; (4) to determine the area and locality in which such additional facilities should be provided; (5) to determine the extent to which non-Federal facilities may be used to supply beds for any department or agency; (6) to develop a complete over-all plan relative to facilities for providing within or through the Veterans' Administration adequate hospitalization and domiciliary care for persons who have served in the Armed Forces of the United States; (7) to make studies and recommendations with respect to such matters as may be referred to the Board by the President, or by any member of the Board."

This bill, which is identical with H. R. 2862 (Rogers, Mass.) and similar to H. R. 633 and S. 1436 previously reported, was referred to the Veterans Affairs Committee.

Medical Committee on Alcoholism

Congressman Radwan (R., N. Y.) would establish in H. R. 7531 a medical committee on alcoholism to advise and cooperate with the U. S. Public Health Service in promoting education on alcoholism throughout the federal agencies, states, and educational bodies and advise on the establishment of clinics on alcoholism. This advisory committee would consist of 7 to 15 members, all physicians, who would be appointed by the President and would serve five year terms without pay. This bill was referred to the Interstate and Foreign Commerce Committee.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

STATE MEDICAL LEGISLATION

Kentucky

Bills Introduced.—H. 290, proposes a Kentucky board of optometric examiners to provide for the regulation of the practice of optometry. H. 301, proposes the creation in the department of Kentucky state police of a bureau of criminal identification and statistics. S. 129, proposes that any physician licensed to practice medicine in Kentucky who is a member in good standing in the Kentucky State Medical Association and of the medical association of the county in which he resides or in which he practices shall be permitted to practice in any hospital totally or partially supported by public funds.

Massachusetts

Bills Introduced.—H. 2353, proposes the creation of a special commission to investigate and study the advisability of establishing a state medical and dental school under the jurisdiction of the University of Massachusetts. H. 2390, App. B, proposes to revive and continue the special commission established to make an investigation relative to the sale, furnishing, delivery, exchange, and use of narcotic drugs within the commonwealth.

Michigan

Bills Introduced.—H. 229, proposes to require every supervisor or laboratorian in charge of any laboratory registered with the Michigan department of health to give notice in writing of every positive laboratory test for communicable disease performed by said registered laboratory. H. 242, to amend the law relating to tuberculosis, proposes to authorize county probate courts to direct the isolation of persons suspected of having tuberculosis but who are unwilling to submit to an examination and to furnish specimens for laboratory study. H. 287, proposes to repeal the basic science act. H. 290, to amend the law relating to chiropractic, proposes to redefine chiropractic as being the diagnosis of human ailments and the prevention and correction of such ailments by the removal of nerve interferences and the adjustment of the spinal column and other joints and tissues, the procedure preparatory to and those common measures incidental to the prevention and correction of such ailments. This shall not be deemed to include the use of medicinal drug treatments or the practice of operative surgery or the practice of midwifery. The present law limits the activities of the chiropractor to hand manipulation. H. 412, proposes to authorize the Michigan department of health to establish, when necessary, reasonable standards of maintenance and operation for hospitals within the state and to provide for periodic inspections of the hospitals to determine whether or not they comply with the standards. S. 1166, proposes certain amendments to the law relating to osteopathy, chief among which is the substituting of the words "osteopathic medicine and surgery" for the word "osteopathy" in the present law, and also a rewording of the grounds for revocation of a license of an osteopathic physician or surgeon. S. 1255, proposes, among other things, to require every practicing physician who shall examine any person and find that such person is addicted to the use of narcotic drugs to make a report thereof to the health officer of the county, city, township, or district in which such person is a resident. S. 1257, proposes the creation of a Michigan commission on the aging to study and investigate the employment, economic, health, educational, recreational, housing, institutional care, and other needs of aged persons. S. 1258, proposes to amend the hospital survey and construction act by defining a hospital as including outpatient departments and mental rehabilitation and convalescent facilities in which patient care is under the professional supervision of persons licensed to practice medicine in Michigan.

Mississippi

Bills Introduced.—S. 1405, proposes the creation of a board of chiropractic examiners and defines chiropractic as the science, art, and philosophy of things natural; a system of locating and adjusting the subluxations of the articulations of the human spine and its adjacent tissues for the correction of the cause of disease. S. 1425, proposes regulations for the conducting of autopsies for the purpose of determining the primary and/or contributing causes of death in the interest of public health in criminal cases and other forensic cases of disease, or for the purpose of determining the extent of the diseased condition for scientific and/or statistical purposes. Under the proposal, any physician duly licensed by the Mississippi state board of health may perform an autopsy, but it is preferable that such person be certified in pathological anatomy by the American Board of Pathology.

New Jersey

Bills Introduced.—A.C.R. 11, proposes the creation of a joint commission to study the possible sources of funds for the proposed medical and dental college of New Jersey from foundations and other private sources. A. 44, proposes an appropriation to the department of institutions and agencies for the treatment of persons using narcotics. A. 56, to amend the workmen's compensation act, proposes that an injured employee may, when care is required, select to treat him any duly licensed physician and provides that if the employee is unable to make the selection for any reason, then the employer shall promptly provide him with the necessary medical care. A. 151, proposes to set aside the funds of the Veterans Loan Guaranty and Insurance Fund into a special fund to be known as the Medical and Dental College of New Jersey Fund to be used for the creation and establishment of a medical and dental college in New Jersey.

New York

Bills Introduced.—A.R. 78, proposes that the joint legislative committee make a survey and study of the social, educational, and physical problems of persons afflicted with cerebral palsy. A. 1369, proposes regulations for the compulsory care, treatment, guidance, and rehabilitation of narcotic drug users. A. 1381, proposes that membership corporations furnishing medical expense indemnity shall include podiatric care provided through duly licensed podiatrists. A. 1451 and S. 1182, to amend the law relating to health and welfare services for school children, propose that such services shall be available to all children attending school, whether such school be public or private. A. 1654 and S. 1356, to amend the education law in relation to prorated medical expense indemnity allowances, propose that nothing shall prohibit a medical expense indemnity corporation pursuant to its contract with the subscriber from prorating a medical expense indemnity allowance among two or more physicians in proportion to the services rendered by each such physician at the request of the subscriber, provided that prior to payment thereof such physicians shall submit both to the medical expense indemnity corporation and to the subscriber statements itemizing the services rendered by each such physician and the charges therefor. A. 1675, to amend the law relating to osteopathy, proposes that no person who is blind but otherwise qualified pursuant to the requirements of the law, shall be denied the additional rights provided for except that such additional rights shall not include the right to perform any act of surgery nor the right to administer drugs or anesthetics. A. 1685, proposes to prohibit a person from selling or offering to sell the eye of a human being during his lifetime and proposes that any contractual arrangement or understanding wherein or whereby the eye of a living or deceased human being is sold or offered for sale shall be deemed to be contrary to public policy. Nothing in the proposal would prohibit a person from donating, without fee, the eye of a human being during lifetime or prohibit any person from the right to direct the manner in which his body or parts of his body may be disposed of after his death. A. 1736, A. 1738, and S. 1466, propose the creation of a state board of chiropractic examiners and defines chiropractic as a system of therapeutics based on the premise that all physiological processes of the human body are coordinated by the nervous system; that interference with the nerve control of these processes impairs their function and induces disfunction or disease by rendering the body less resistant to infection or other exciting causes. Its therapy is designed to detect and correct by manual or mechanical means structural imbalance, distortion, or subluxation of the human body for the purpose of moving nerve interference, where such interference is the result of or related to distortion, misalignment, or subluxations of or in the vertebral column. A. 1768 and S. 1479, propose the creation of a temporary state commission to be known as the commission on licensure in the healing arts, for the purpose of making a comprehensive study and survey of the present laws of the state governing the licensure of professional practice, including the laws relating to optometry, dentistry, pharmacy, nursing, podiatry, osteopathy, and physiotherapy, and to consider the necessity or desirability of extending, adding to, or otherwise revising the present laws of the state to require the licensing of other practices relating to human health and physical or mental well-being. A. 1823 and S. 1557, propose the creation of 50 state scholarships for professional nursing. A. 1908, to amend the public health law, proposes that reports forwarded to the state department of health relating to cancer and other malignant tumors shall be made available on certification by the state department of health to any duly licensed physician practicing in New York state who desires such report for purposes of cancer research. A. 1912 and S. 1834, to amend the law relating to mental hygiene, propose to authorize the commissioner to examine, inspect, and investigate mental hygiene clinics, child guidance clinics, or other facilities treating mental illness, epilepsy and emotional disorders. A. 1913, to amend the law relating to the certification of qualified psychiatrists, proposes that such persons shall have had five years' training and experience approved by the board in the care and treatment of persons suffering from mental disorders. A. 1917, to amend the mental hygiene law relating to the appointment and qualification of a commissioner of mental hygiene, proposes that such commissioner shall be a reputable physician duly licensed to practice medicine in the state of New York, who shall have had at least 10 years' experience in the practice of his profession, confined wholly or substantially to the care and treatment of persons suffering from nervous and mental disorders of which at least five years shall have been as administrative head of a public institution for the care and treatment of persons afflicted with nervous and mental disorders or any position of similar and equivalent administrative responsibility. A. 2014 and S. 1642, propose the creation of a state board of physiotherapy examiners. A. 2015 and S. 1687, propose the enactment of a comprehensive state-wide system of health insurance. A. 2025 and S. 1587, to amend the public health law, propose conditions under which a deceased person may authorize dissection of his body after his death and propose the classes of person who may consent to such a dissection in the event that the deceased has made no direction prior to his death. A. 2027 and S. 1254, propose that in any case in which a state or political subdivision pays all or part of the cost for medical or dental expense indemnity or hospital service the subscriber shall have the right to select for such expense indemnity or service any nonprofit medical care plan authorized by the superintendent of insurance. A. 2103, proposes to make it unlawful for any employer to require any employee or applicant for employment to pay the cost of a medical examination or the cost of furnishing any records required by the employer as a condition of employment. A. 2039 and S. 1291, propose to make municipalities liable for the malpractice of resident physicians and interns under certain circumstances. A. 2186, to amend the mental hygiene law, proposes to authorize the commissioner to set aside a building for the purpose of conducting studies in causes, nature, and treatment of senile psychoses,

to discover and apply more efficient measures of prevention, treatment, and cure of such disorders. A. 2191 and S. 1774, propose an appropriation to the state department of health for the purpose of conducting experiments in cooperation with the medical society of New York state in mass detecting diseases in their early stages through the process of multiphasic screening. A. 2324, proposes the establishment as part of the department of health of a heart institute for the purpose of research and training as to the cause and cure of heart diseases. S. 1072, proposes to make it unlawful for any person to present any television program depicting a physician or nurse endorsing any product or making any report on a product unless such person actually is a licensed physician or nurse. S. 1121, proposes to authorize membership corporations furnishing medical expense indemnity to furnish podiatric care provided through duly licensed podiatrists. S. 1269, proposes to make it unlawful for any person to obtain or attempt to obtain a barbiturate drug or prescription by fraud or forgery. S. 1285, proposes regulations for the temporary licensing of physiotherapists working under the supervision of a duly incorporated hospital or clinic or a political subdivision of the state. S. 1356, to amend the law relating to prorating medical expense indemnity allowances, proposes that nothing shall prohibit a medical expense indemnity corporation from prorating a medical expense indemnity allowance among two or more physicians in proportion to the services rendered by each such physician at the request of the subscriber, provided that prior to payment thereof such physicians shall submit both to the medical expense indemnity corporation and to the subscriber statements itemizing the services rendered by each such physician and the charges therefor. S. 1408, to amend the education law, proposes increased penalties for the illegal practice of medicine. S. 1440, proposes to repeal the law relating to smallpox vaccination reports by physicians. S. 1642, proposes the creation of a state board of physiotherapy examiners. S. 1654, proposes to authorize the use of the injunctive process to restrain violations of the medical practice act. S. 1777, proposes the establishment of an adult hygiene and geriatrics program designed to improve and protect the health and vitality of middle-aged and elderly citizens of the state. S. 1789, to amend the education law, proposes to redefine the practice of medicine as including mental or nervous disorders. S. 1850, proposes an appropriation to the state department of health for the purpose of conducting a pilot experiment in the physical rehabilitation of old persons in old-age homes, nursing homes, or hospitals and a community demonstration project in physical rehabilitation in a small and moderate-sized community.

Bill Enacted.—A. 4, has become Ch. 10 of the Laws of 1954. It is a community mental health services act.

South Carolina

Bills Introduced.—H. 1750, proposes that no superintendent of any institution of learning and no school board or principal of the school board shall admit as a pupil any child or person who cannot produce satisfactory evidence of having been vaccinated for smallpox and inoculated for diphtheria as often as may be directed by ordinance of the city or town in which the school is located. H. 1751, proposes that every doctor, midwife, nurse or other person attending the delivery of a child shall instill or have instilled into the eyes of the baby within one hour after birth, some effective prophylactic approved by the state department of health for the prevention of blindness from ophthalmia neonatorum. S. 504, proposes the creation of a state board of homeopathic medical examiners.

Virginia

Bills Introduced.—H.J.R. 31, proposes to direct the advisory legislative council to make a study and report upon such measures as are necessary for the control and elimination of rabies. H. 56, proposes a licensing law for opticians. H. 146, proposes to require each physician, optometrist, or other person, who upon examination of the eyes of any person determines that such person is blind, to immediately report the name and address of such person to the proper state authority. H. 326, proposes to authorize the maintenance of a hospital farm for the care, treatment, and rehabilitation of inebriates. H. 343, proposes that any physician or other practitioner who makes an examination physical or mental of a person shall, upon the written request of such person, furnish a copy of all reports made of such examination or treatment. S.J.R. 7, proposes a creation of a commission to study the medical scholarship program. S.J.R. 18, proposes the creation of a commission to study the desirability and feasibility of providing specially designed geriatric facilities for the care of aged patients. S. 32, to amend the law relating to the definition of dangerous drugs, proposes to include in such list, among others, amphetamine, the antibiotics penicillin and streptomycin, and drugs that have been found by the State Board of Pharmacy to be dangerous. S. 47, to amend the medical practice act, proposes to exempt therefrom members of the Air Corps in active service. S. 48, to amend the medical practice act, proposes certain changes in the listing of grounds for the revocation of a license by, among other things, adding the use of intoxicating liquors, narcotics, or drugs to the extent that the licensee is unfit for the performance of his professional obligations and duties. S. 100, proposes to require persons desiring to employ as a domestic servant to furnish the employer with a certificate from a physician licensed to practice medicine in the state or from the public health officer for the county or city in which the person resides, certifying that such person is not suffering from any infectious, contagious, communicable, or dangerous disease. S. 181, proposes regulations for the control of rabies. S. 203, proposes regulations for the granting of scholarships to medical students who will agree to engage in the roll of practice of medicine in Virginia after their graduation.

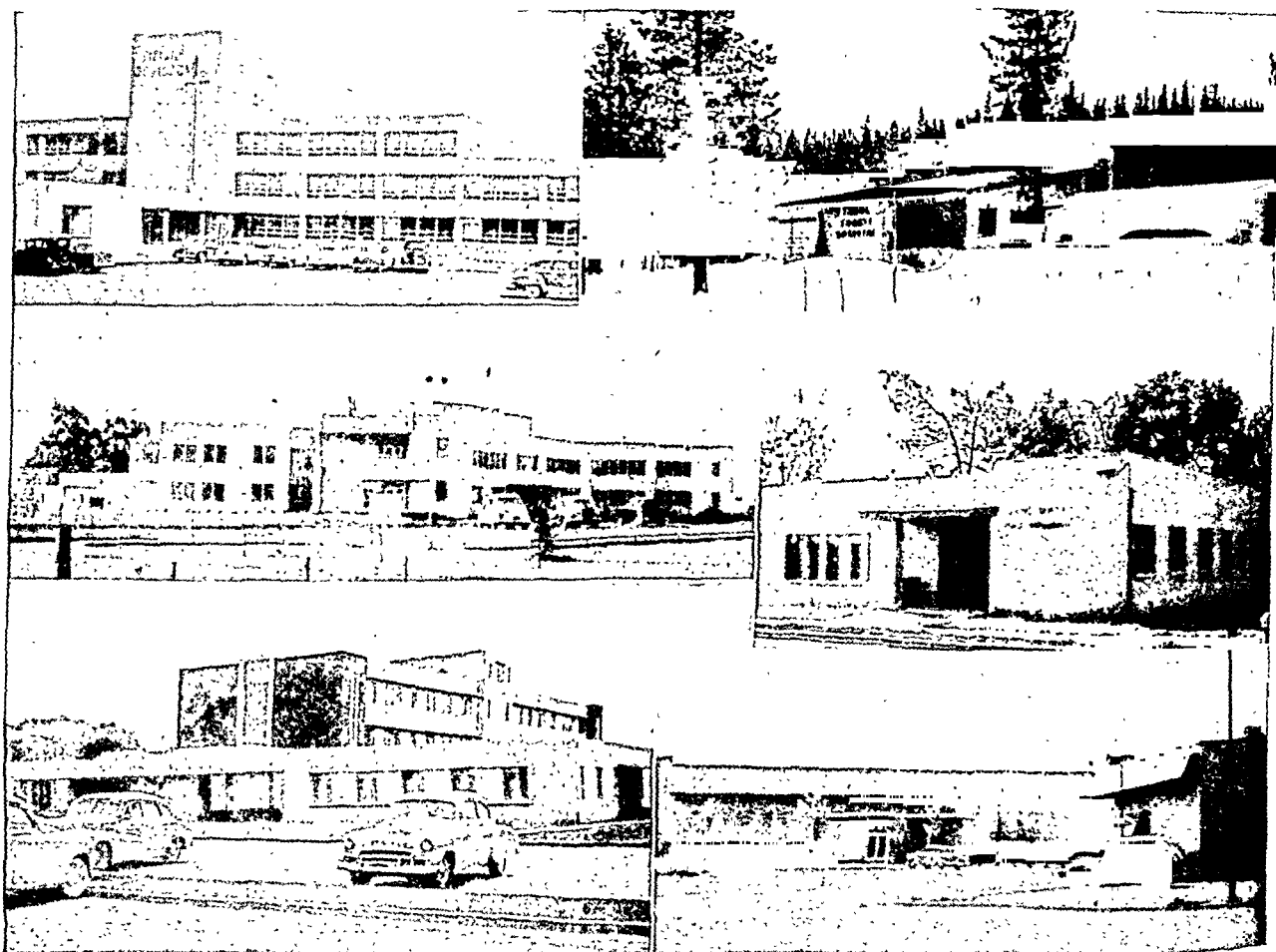
MEDICAL NEWS

CALIFORNIA

Hospitals Built with Hill-Burton Aid.—The Hospital Survey and Construction Program (Hill-Burton), which was passed by the 79th Congress, and which became effective Aug. 13, 1946, established a basis for the allocation of federal funds to assist local communities throughout the nation in building hospitals and health facilities. The state of California by enactment of chapter 327, Statutes of 1947, established the legal basis for California's participation in this national program. A brochure, entitled "Hospitals for California," published in January, 1953 as a progress report on the administration of the program between 1946 and 1952, points out that the Hill-Burton act and the state law passed made it possible for communities to secure financial assistance in constructing general hospitals, tuberculosis hospitals, chronic disease hospitals, mental hospitals, and

When a project is completed, the local community organization that sponsors the project has clear title to the facility and is not subject to federal control or direction nor to any state control or direction except general provisions of the state law which relates to all hospitals in the state. No assistance is available for operation of the institutions aided in the program. Hospitals that are operated for profit are not eligible for consideration in this assistance program.

California law provides that in the administration of this program the State Department of Public Health will act with the advice of the Advisory Hospital Council, members of which are appointed by the governor of the state. This council receives no compensation for its service, and it also represents the geographical, professional, and consumer interests throughout the state.



New California Hospitals and Health Centers. Reading from top and left to right are Mercy Hospital, Redding; Tahoe Forest Hospital, Truckee; Tulare District Hospital, Tulare; Butte County Health Center, Oroville; Merced County Hospital, Merced; and Memorial Hospital, Modesto.

public health centers. The federal funds are allocated to states each year, the states being responsible for the distribution of funds to individual projects. Each state is required to engage in continuous research and investigation of hospital needs within the state. These data are revised each year to reflect the changing conditions and needs of the state, and on this information a state plan is developed which evaluates the relative need for additional hospital facilities in the various areas of the state.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Many communities and public agencies have developed needed hospital facilities since 1946 without financial assistance from federal or state funds. Hill-Burton aid has been used for 77 hospitals and health facility projects throughout the state of California; of these 13 are public health centers and 64 are hospitals. In this period, including hospitals completed, under construction, and in advanced stages of planning, there has been an expansion of 22,600 beds throughout California, of which about 4,113 were created with the assistance of the program. About 9,500 of the 22,600 beds are mental hospital beds, principally in state mental hospitals. Eliminating mental hospitals from consideration, the Hospital Survey and Construction Pro-

gram has assisted about one-third of the hospital expansion that has occurred in California since 1946. During the seven fiscal years (1947-1948 to 1953-1954), \$20,084,863 in federal and \$11,884,212 in state funds have been allocated to projects in this program.

Principal emphasis in the program has been on acute general hospital facilities. About 3,200 of the beds provided with the assistance of the program are general hospital beds. Fifty-three of the 77 projects have been general hospitals. Six allocations have been made to hospitals for patients with chronic diseases, 3 to tuberculosis hospitals, 2 to mental hospitals, and 13 to health centers. Emphasis during the first years of the program was on assistance to projects in the extremely isolated rural areas in which there were no hospital facilities. While allocations of funds to areas of this type are being continued, increasing emphasis in the program is being placed on allocations to the more populated areas, particularly rapidly growing suburbs of large cities. Some of the hospitals and health facilities that have been built under the Hill-Burton program in California are shown in the pictures on the opposite page.

The California Department of Public Health has prepared a supplement to the aforementioned brochure summarizing the state plan for 1953-1954. That revised state plan is based on Bureau of Census estimates of civilian population in California as of July 1, 1951, of 10,648,000 in comparison with 10,421,000, which was used in the 1952-1953 state plan. The 1953-1954 state plan estimates of bed needs for each of the 110 general hospital service areas are based on an analysis of hospital usage in California. The supplement states that the average resident of California spends about one patient day per year in a general hospital, though experience in various parts of the state varies widely. The Department of Public Health and the Advisory Hospital Council both believe that consideration of hospital usage in the establishment of bed-need estimates is a better method than such estimates as ratio of beds per 1,000 population.

CONNECTICUT

Annual Cancer Conference in New Haven.—The annual Connecticut Cancer Conference for Physicians, March 10, 1-5:45 p. m. at the Hotel Taft, New Haven, sponsored by the American Cancer Society, Association of Connecticut Tumor Clinics, Connecticut State Medical Society, and the Connecticut State Department of Health, will open with a new motion picture on lung cancer, which will be followed by "The Relation of Fundamental Research to Cancer Chemotherapy" by Dr. Jack Davidson, New York; "Primary Cancer of the Lymph Nodes" by Dr. George L. Kauer, New York; "Value of the Papanicolaou Technique in the Diagnosis of Cancer" by Dr. N. Chandler Foot, New York; and a question and answer panel. At 3:30 p. m. the Memorial Center staff, New York, will present a panel discussion on management of the patient with advanced cancer. The medical aspects of the subject will be discussed by Dr. Raymond W. Houde, the surgical aspects by Dr. Lemuel Bowden, and the radiation aspects by Dr. James J. Nickson. A question and answer panel and a social hour will conclude the conference.

ILLINOIS

Compulsory Rabies Inoculations.—Following increasing reports of dog bites in the Chicago area, compulsory rabies inoculation for dogs was recently extended to all of Cook County at the request of Dr. John B. Hall, head of the county health department. The quarantine requiring that all dogs be kept leashed, muzzled, or confined, has been in effect in suburban towns for several weeks, and Chicago has been under a rabies quarantine since Dec. 7, with compulsory rabies shots instituted Feb. 4. According to the board of health report, from Jan. 1 through Feb. 7 a total of 1,486 dog bites were reported in Chicago. During the same period, 26 dogs were found to have had rabies, and 103 persons who were exposed to them began receiving antirabies treatment. The January figures showed a marked increase over the preceding months, 948 dog bites having been reported in December and 740 in November. E. C. Khuen, D.V.M., Evanston, has been appointed rabies inspector for Cook County.

Chicago

Cardiac Conference at Cook County.—An open clinicopathological cardiac conference will be held March 12, 11 a. m. to 12 noon, in the Children's Amphitheatre, Cook County Hospital, 700 S. Wood St. Dr. Egbert H. Fell, attending surgeon in cardiology, will present "Experiences in Cardiac Surgery." Discussion will be by Dr. William E. Adams, professor, department of surgery, University of Chicago Clinics.

Personal.—Dr. Noah D. Fabricant, clinical assistant professor of otolaryngology, University of Illinois College of Medicine, will present "Current Progress in Medication of the Ear, Nose, and Throat," at a meeting of the Pima County Medical Society in Tucson, Ariz., March 9.—Dr. Max Thorek recently delivered the 1954 Cushing memorial lecture "Impending Death Under Anesthesia" before the faculty of the medical school of McGill University Faculty of Medicine in Montreal, Canada.

KENTUCKY

Rural Health Conference.—"Help Yourselves to Health" will be the theme of the Kentucky Rural Health Conference that will be held March 10-11 at the Kentucky Hotel, Louisville, under the sponsorship of the Kentucky Rural Health Council, of which Dr. Walter L. O'Nan, Henderson, is chairman. Dr. C. Wyatt Norvell, New Castle, chairman of the rural health committee of the Kentucky State Medical Association, will preside at the opening session Wednesday afternoon. Greetings by Dr. J. Duffy Hancock, Louisville, president, Kentucky State Medical Association, will be followed by the address "Rural Health—You Can Do Something About It" by Dr. E. Bruce Underwood, Louisville, commissioner of health, Kentucky State Department of Health. At 2:15 p. m. there will be a symposium on farm and home safety. Dr. Wendell Hurt, Scottsville, will present "A Young Doctor Looks at a Rural Community," and Dr. Mildred E. Gabbard, Booneville, will have as her topic "A Community Finds Its Health Needs." The session will end with group discussion periods, with Dr. Donald L. Graves, Frenchburg, serving as group chairman for "Finding Your Community's Health Needs." Speakers at the banquet, 6:30 p. m., will be the Hon. Keen Johnson, Richmond, former governor of Kentucky, whose topic will be "Health Is Everybody's Business," and Mr. Clarence Miller, Shelbyville, whose presentation will be "A Farmer Looks at the Kentucky Rural Medical Scholarship Fund." On Thursday morning Aubrey D. Gates, Little Rock, Ark., Field Director, A. M. A. Council on Rural Health, will discuss "What Rural Health Councils Can Do," and reports from Kentucky rural health councils in action will be given under the heading "We Are Helping Ourselves to Health."

MICHIGAN

Lecture by Dr. Ravdin.—Dr. Isidor S. Ravdin, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia, will discuss biliary tract disease in the Henry Ford Hospital auditorium, Detroit, March 9, 8:15 p. m.

Annual Clinical Institute.—Physicians from neighboring states and Ontario are invited to the annual Michigan Clinical Institute at the Sheraton-Cadillac Hotel, Detroit, March 10-12. Dr. Wilfrid Haughey, Battle Creek; will be general chairman. The institute is sponsored by the Michigan State Medical Society, Wayne County Medical Society, Michigan Heart Association, American College of Surgeons, the medical schools of Wayne University and the University of Michigan, and related organizations. The sessions will open at 9 a. m. Wednesday with a discussion of surgical treatment of thyroid disease by Dr. Bentley P. Colcock, Boston. At 11 a. m. Dr. Eugene P. Pendergrass, Philadelphia, will deliver the R. S. Sykes lecture "Difficulties in Early Diagnosis of Lung Cancer," followed at 11:30 a. m. by Dr. John H. Warvel, Indianapolis, whose topic will be "Treatment of Diabetic Emergencies." The Michigan Foundation of Medical and Health Education lecture, "Vaccination for Poliomyelitis," will be delivered Thursday, 11:20 a. m., by Dr. Albert B. Sabin, Cincinnati. At 4:40 p. m. a presentation "Alcoholism and Cardiovascular Disease" by Dr. Frederick W. Niehaus, Omaha, will precede the daily 5 o'clock discussion conference.

The Friday morning session will begin at 9:20 a. m. with a discussion of congenital cardiac malformations by Dr. Stanley Gibson, Chicago, and end at 11:35 a. m. with the presentation "Pathogenesis and Treatment of Essential Hypertension" by Dr. George E. Wakerlin, Chicago. At 4:10 p. m. Dr. Stanley F. Hampton, St. Louis, will have as his topic "Differential Diagnosis and Treatment of Extrinsic and Intrinsic Asthma," and at 4:40 p. m. Dr. Reginald G. Bickford, Rochester, Minn., will present "Sensory Precipitation of Seizures."

MISSOURI

Consultants and Lecturers.—The St. Louis University School of Medicine is presenting four programs by guests, who will offer consultation in their fields and deliver lectures. Dr. Leland D. Stoddard, associate professor of pathology, University of Kansas School of Medicine, Kansas City, Kan., was scheduled to present the following series March 4-6: Thursday, "Development and Destiny of Carcinoma-in-Situ"; Friday, "Chronic Myeloses"; and Saturday, a seminar, "Research Into Acute Tubular Necrosis." The lectures, sponsored by the department of pathology, will be open to faculty members in the clinical and basic science departments, students, and others interested. March 18-20 Dr. John Harman, associate professor of pathology, University of Wisconsin Medical School, Madison, will visit the department. On Thursday his topic will be "Metabolism of Skeletal Muscle," and Friday he will lecture sophomore medical students on enzymatic processes in cloudy swelling. The seminar on Saturday will be on "Instrumentation in Medical Research."

NEBRASKA

Lincoln-Lancaster Conference.—The Lancaster County Medical Society invites physicians to attend its second Lincoln-Lancaster Medical Conference, March 11, at the Cornhusker Hotel in Lincoln. The following will participate in the program: Dr. Paul H. Lorhan, professor of anesthesiology, Dr. Leroy A. Calkins, professor of obstetrics and gynecology, and Dr. Max S. Allen, University of Kansas School of Medicine, Kansas City, Kan., Dr. Walter L. Palmer, professor of medicine, University of Illinois, Chicago, Dr. Robert D. Moreton, Fort Worth, Texas, Dr. Robert Elman, clinical professor of surgery, Washington University School of Medicine, St. Louis, and Dr. Howard A. Rusk, chairman, department of physical medicine and rehabilitation, New York University College of Medicine.

NEW YORK

Symposium on Air Pollution.—The second annual symposium on air pollution and its control will be held at Wagner Memorial Lutheran College, Staten Island, March 6, from 9:30 a. m. to 4:30 p. m., under the auspices of the department of bacteriology and public health of the college.

Dr. Meigs to Speak on Cancer.—The Central New York Association of Gynecologists and Obstetricians will have as guest on March 9 Dr. Joe Vincent Meigs, clinical professor of gynecology, Harvard Medical School, Boston, who will direct a seminar, 2-4 p. m. at Syracuse Memorial Hospital. Dinner, 6:30 p. m., at the University Club will precede the George B. Broad lecture at the college of medicine auditorium, 8:30 p. m., at which Dr. Meigs will present "Carcinoma of the Cervix—35 Years' Experience."

Chronic Disease Week.—Chronic Disease Week of the Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn, (March 8-12) will be devoted to a postgraduate course on chronic diseases of the musculoskeletal system. Daily teaching clinics, presentations, and panel discussions will give emphasis to advances in clinical and laboratory diagnosis, therapy, and rehabilitation. On Monday, 8:30 p. m. in the auditorium of the Freeman Pavilion, Rutland Road and East 49th St., Brooklyn, Dr. Benjamin Kramer, professor of clinical pediatrics, State University of New York College of Medicine at New York City, Brooklyn, will present "Problems of Bone Formation and Resorption," and Dr. Edward C. Reifenshtein Jr., director of the division of biological and therapeutic research, Schering Corporation, will discuss "Bones and Hormones."

New York City

Cancer Lecture.—Dr. Abraham Cantarow, professor of biochemistry, Jefferson Medical College of Philadelphia, will present the sixth Isidore W. Held lecture, "Certain Host-Tumor Interrelations in Experimental Cancer," March 8, 8:30 p. m., in the Beth Israel Hospital Auditorium, Stuyvesant Square East and 17th Street.

Meeting on Gastroenterology.—The New York chapter of the American College of Gastroenterology will present the following program at the New York Academy of Medicine, 2 E. 103rd St., March 8 at 8:30 p. m.:

Hormonal Influences in Peptic Ulcer Disease, Seymour J. Gray, Boston.
Evaluation of the Combined Manometric and Cholangiographic Studies in Europe, Roy Upham, New York.
Therapeutic Aspects in Liver Cirrhosis, Isidore Snapper, Brooklyn.

Roentgenograms of gastrointestinal cases will be shown for diagnosis and discussion at 8 p. m.

Cardiovascular Problems in Diabetes Mellitus.—At the combined meeting of the New York Heart Association, Inc. and the Clinical Society of the New York Diabetes Association, March 9, 8:30 p. m., in Hosack Hall, New York Academy of Medicine Building, 2 E. 103rd St., New York 29, cardiovascular problems in diabetes mellitus will be discussed. Dr. Irving P. Graef will preside over the following program:

Relation of Control of Diabetes Mellitus to Plasma Protein Patterns and the Development of Vascular Degeneration, E. Perry McCullagh, Cleveland.
Kimmelstiel-Wilson Syndrome and Its Clinical Variants, Harold Rifkin, New York.
Medical Management of Peripheral Arterial Occlusive Disease, Karl Harpuder, New York.
Arterial Resection and Endarterectomy in Arterial Occlusive Disease, Henry T. Bahnson, Baltimore.

OREGON

Dr. Stewart to Address Surgical Society.—Members of the medical profession are invited by the Portland Surgical Society to a meeting March 12-13 in the library, University of Oregon Medical School, Portland. Dr. John D. Stewart, professor of surgery, University of Buffalo School of Medicine, will discuss "Traumatic Shock" at 11 a. m. and after luncheon at the University Club will serve as moderator for a panel on lesions of the large bowel. Discussants will include Drs. Louis P. Gambee, Dean B. Seabrook, and Karl H. Martzloff, Portland. After dinner at the Multnomah Hotel, Dr. Stewart will speak on massive gastrointestinal bleeding. At 10 a. m. Saturday, he will be moderator for a panel and at 11 o'clock will present "Thoraco-abdominal Approach for Upper Abdominal Surgery."

PENNSYLVANIA

Society News.—On March 16 the Allegheny County Medical Society, 225 Jenkins Building, Pittsburgh, will hold a joint meeting with the Diabetes Association. Dr. Garfield G. Duncan, Philadelphia, will speak on disordered carbohydrate metabolism.

Tour to San Francisco with Stopovers.—The Medical Society of the State of Pennsylvania is arranging a tour (limited to 150 persons) to San Francisco and return for the A. M. A. annual meeting in San Francisco, June 21-25. The itinerary includes stops at Colorado Springs, Colo., Lamy, N. Mex., Grand Canyon, Ariz., and Riverside, San Diego, and Los Angeles in California, in all of which places sight-seeing tours have been arranged. Tours have also been planned for the following stops on the return journey: Portland, Ore., Seattle, Glacier National Park in Montana, and Waterton Lakes Park in Canada.

Philadelphia

Pediatrics Lecture.—Beta chapter, Phi Lambda Kappa, at Jefferson Medical College of Philadelphia, will present Dr. Robert E. Gross, William E. Ladd professor of children's surgery at Harvard Medical College, Boston, March 9, 8:30 p. m., at McClellan Hall, 1025 Walnut St. Dr. Gross, who is surgeon in chief at the Children's Hospital in Boston, will discuss some surgical problems of infancy.

Woman's College Founders' Day Forum.—In honor of Founders' Day, March 11, the Woman's Medical College of Pennsylvania will present a Health Assurance Forum, 4-10 p. m., in the auditorium of the college at Henry Ave. and Abbottsford Road. The forum will be preceded by dedication of the Martha Tracy Memorial for Preventive Medicine. After the address of welcome by Dr. Burgess L. Gordon, president of the college, Dr. Ellen C. Potter, Philadelphia, will read "The History of Preventive Medicine at the Woman's Medical College." "The Positive Approach to Health Maintenance" by Dr. James P. Dixon, Philadelphia commissioner of health, will precede a visit to the memorial. Dr. Anthony J. Lanza, New York, will serve as moderator for a panel on preventive medicine and industry, 4:10-5:10 p. m., in which the participants will be Anna M. Baetjer, Sc. D., Baltimore, Dr. Francis J. Braceland, Hartford, Conn., and Dr. William A. Sawyer, Rochester, N. Y. Dr. Donald A. Covalt, New York, will be moderator for the panel "Going Back to Work," 5:15-6:15 p. m., with Drs. Ronald F. Buchan, Newark, and Earl C. Bonnett, New York, and Miss Mary E. Switzer, Washington, D. C., as collaborators. The after-supper program at 8 p. m. will include a presentation on optimal health for the Delaware Valley by Mr. David E. Williams, Philadelphia. The final panel, "Health Maintenance for Enhancing Labor-Management Accord," 8:15-9:15 p. m., will be moderated by Dr. Edward C. Holmblad, Chicago, and presented by Drs. Leo Price, New York, and Norbert J. Roberts, Philadelphia, and Mr. Bayard L. England, Atlantic City. "To Keep Our Bodies as Fit as Our Machines" will be the final presentation, 9:15 p. m., by Dr. George M. Piersol, Philadelphia.

Pittsburgh

Educational Television Station.—WQED, a nonprofit enterprise administered by a board of directors representing education, civic, and community interests, is scheduled to start broadcasting in March over channel 13 as one of the pioneer educational television stations. The physical facilities of the station are located in Oakland, Pa., in a building donated by the University of Pittsburgh. The Westinghouse KDKA tower above the stadium will be used as the transmitting point, and the money for equipment has been donated by the Arbuckle-Jameson Foundation, the Ford Foundation, and the A. W. Mellon Trust. It is expected that the station will cover a 10 county area surrounding Pittsburgh. A committee of the Allegheny County Medical Society has met with the station management as a preliminary to developing telecasts on health and medical subjects (see THE JOURNAL, Dec. 19, 1953, p. 1459).

TENNESSEE

Postgraduate Courses.—The University of Tennessee College of Medicine, Memphis, in cooperation with the John Gaston Hospital and Le Bonheur Children's Hospital, will offer the following postgraduate courses for midsouth physicians during 1954: pediatrics, March 10-12; abdominal surgery, March 21, April 1-2; obstetrics and gynecology, May 19-21; trauma, July 28-30; management of simple fractures, Sept. 15-17; and clinical electrocardiography, Oct. 6-8. Further information may be obtained from the Postgraduate Department, 4 S. Dunlap, Memphis.

TEXAS

Telephone Broadcast from Austin.—Dr. Henry M. Winans, Dallas, will be moderator for a telephone broadcast, March 9, which, under the sponsorship of the Council on Medical Education and Hospitals of the Texas Medical Association, will originate in the headquarters of the Texas Medical Association in Austin. Dallas physicians will present a program on diet, Dr. Donald W. Seldin speaking on diet in cardiovascular disease, Dr. Edwin L. Rippey on diet in metabolic disease, and Dr. Tate Miller on diet in gastrointestinal disease.

Annual Tumor Conference.—The third annual state tumor conference, sponsored by the Wichita County Medical Society Tumor Clinic, the American Cancer Society, and the state department of health, will be held March 13 at Midwestern University in Wichita Falls. This clinic, which is approved for

credit in formal postgraduate training, is open to physicians without a registration fee. After the address of welcome by Dr. James T. Lee, Wichita Falls, president of the Wichita County Medical Society, the following program will be presented:

- Shields Warren, Boston, (1) Diagnosis and Treatment of Cancer of the Thyroid and (2) Radioisotopes in Treatment of Tumors.
- Alton Ochsner, New Orleans, (1) Early Diagnosis and Treatment of Cancer of Stomach and (2) Early Diagnosis of Cancer of Lung.
- Jesshill Love, Louisville, Ky., (1) Cancer in General Practice and (2) Treatment of Malignant Disease.

Dr. Bailey R. Collins, Wichita Falls, director of the clinic, will preside over the morning session and Dr. David H. Allen, Wichita Falls, over the afternoon session, which will end with a question and answer period.

GENERAL

Southeastern Surgical Congress.—The Southeastern Surgical Congress will hold its annual session at the Dinkler-Tutwiler Hotel, Birmingham, Ala., March 8-11. Dr. James R. Young, Anderson, S. C., will deliver the presidential address, "The Value of a Cancer Clinic in a Community Hospital." Numerous guest presentations will be made. Each afternoon session will end with a panel discussion at 4:30 p. m. (Monday, traumatic lesions; Tuesday, esophagogastric intestinal hemorrhage; Wednesday, liver and gallbladder pathology; and Thursday, surgical management of peptic ulcer). The banquet is scheduled for Wednesday, 7:30 p. m.

Eastern Conference of Radiologists.—The section on radiology of the Medical Society of the District of Columbia will be host to the Eastern Conference of Radiologists at its session, March 12-13, Statler Hotel, Washington, D. C. The constituent organizations of the conference are the New England, the New York, and the Philadelphia roentgen ray societies, and the radiological sections of the Medical Society of Baltimore and of the District of Columbia medical society. The program will include a visit to the National Institutes of Health. Information may be obtained from Dr. Karl C. Corley, Chairman, Committee on Arrangements, 1835 Eye St., N. W., Washington 6, D. C.

Medical Art on Tour.—Smith, Kline & French Laboratories, Philadelphia, have arranged a tour of a medical art exhibit containing the works of Rembrandt, Goya, Daumier, Vesalius, Toulouse-Lautrec, and other masters, to be shown at medical colleges and hospitals across the country. The collection, entitled "Ars Medica," composed of 85 prints depicting the practice of medicine over the centuries, was assembled by the Philadelphia Museum of Art. It has gone on display at the University of Texas Medical Branch, Galveston, Baylor University College of Medicine, Houston, and the Southwestern Medical School in Dallas. During March the exhibit may be seen as follows:

- March 15-19, University of Oklahoma School of Medicine, Oklahoma City.
- March 22-28, University of South Dakota School of Medicine, Vermillion.
- March 30-April 5, University of Nebraska College of Medicine, Omaha.

Meeting on Prevention of Blindness.—The National Society for the Prevention of Blindness will hold its annual conference at the Jefferson Hotel, St. Louis, March 10-12. Wednesday morning will be devoted to discussion on health for preschool and school age children with impaired eyesight and on interprofessional relationships in eye care. The Wednesday afternoon workshop, "Meeting the Needs of Partially Seeing Children in Rural Areas," will be continued Thursday morning. Thursday afternoon consideration of medical aspects of prevention of blindness will include presentations on strabismus, current status of trachoma, reading disabilities, measurement of aqueous outflow, and current concepts about cataracts. The Friday morning session will be concerned with progress in industrial vision conservation. The society is supported entirely by voluntary contributions from more than 48,000 members and contributors in every state.

American Orthopsychiatric Association.—For its annual meeting at the Hotel Commodore, New York, March 11-13, the American Orthopsychiatric Association has scheduled 90 papers, 18 case workshops, and 1½ days of mental health film show-

ings. The presidential session, Thursday, will be concerned with causes of family breakdown, and Dr. Hyman S. Lippman, St. Paul, will open this program. Symposia will be presented, including "Qualifications for Psychotherapists"; "Use of Spontaneous Art in Psychotherapy"; "Techniques, Methodologies and Problems in Community Mental Health Research"; "The Hospitalized Child"; "A New Pattern for Mental Health Services in a Children's Court"; and "Child Development Center Projects." Workshops will include a case report on a schizophrenic boy, gastrointestinal disturbances in the very young child, psychological problems of the congenitally blind child, dynamics of obesity, and treatment of the adolescent delinquent.

Meeting on Electroencephalography.—The Western Society of Electroencephalography will hold its annual meeting March 7-8 at Del Monte Lodge, Pebble Beach, Calif. The sessions will open at 2 p. m. Sunday with presentation of "Headache and the EEG" by Commander Henry S. Colony, M. C., U. S. N., and Lieut. W. F. Stafford, M. C., U. S. N. R., and will close at 3 p. m. Monday with electrographic observations on gargoylism in siblings by Drs. Paul A. Shea and Ward W. Woods, San Diego, Calif. At 10 a. m. Monday morning Dr. Charles L. Yeager, San Francisco, will present "Methods of Quantifying Electroencephalographic Data"; at 2:30 p. m. Sunday Dr. Yeager and Dr. Edward E. Shev, San Francisco, will give "An Analysis of Electroencephalographs in Post-Traumatic, Closed, Chronic Head Injuries"; and at 3 p. m. Dr. Yeager and Dr. Frances Phillips Sheridan, Imola, Calif., will give a preliminary report on EEG as a prognostic and diagnostic aid in the study of the senescent individual. Other presentations will include "Observations on Relationship Between Psychomotor Epilepsy, Sexual Psychopathy, and Pathological Intoxication" by Dr. George N. Thompson, Los Angeles, "The Electroencephalogram in Hyperactive Behavior Disorders" by Dr. Leon Oettinger Jr., San Marino, Calif., and "Status Petit Mal" by Dr. Leslie B. Mann, Los Angeles. Dr. Walter J. Friedlander, Veterans Administration Hospital, San Francisco, will present an analysis of 1,013 consecutive EEG's correlated with their clinical findings.

FOREIGN

Association for Rehabilitation of the Severely Injured.—A registered association for rehabilitation of the severely injured has been founded in Berlin, Germany, with the participation of numerous organizations interested in health and social service, the association of the war injured, public and private welfare organizations, and the executive committees of employer and employee organizations. An exhibit is being prepared by the newly founded association for presentation in the spring of 1955 in Berlin. Experts interested in rehabilitation problems will be invited to a planning meeting early this summer in Berlin. The Federal Ministry of Work has appropriated 10,000 Deutsche marks (about \$2,400) and the Senate of Berlin, 50,000 Deutsche marks (about \$12,000) for promotion of this plan. Suggestions should be addressed to the business office of the association, Berlin-Wilmersdorf, Sachsische Strasse 28.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1954 Annual Meeting, San Francisco, June 21-25.
1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.
1956 Annual Meeting, Chicago, June 11-15.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Mobile, April 15-17. Dr. Douglas L. Cannon, 537 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ACADEMY OF NEUROLOGY, Shoreham Hotel, Washington, D. C., April 29-May 1. Dr. Alexander T. Ross, 1040 West Michigan St., Indianapolis 7, Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Hotel Galvez, Galveston, Texas, April 7-9. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, Ambassador Hotel, Atlantic City, N. J., April 11-15. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, Philadelphia, Pa., April 8-10. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 6-8. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN ASSOCIATION FOR THE STUDY OF NEOPLASTIC DISEASES, Lord Baltimore Hotel, Baltimore, April 29-30. Dr. Bruce H. Sisler, P. O. Box 268, Gatlinburg, Tenn., Executive Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Roney Plaza Hotel, Miami Beach, Fla., April 5-10. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN COLLEGE OF PHYSICIANS, Conrad Hilton Hotel, Chicago, April 5-9. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., April 13-17. Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secretary.

AMERICAN GOITER ASSOCIATION, The Somerset, Boston, April 29-May 1. Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N. Y., Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, Hotel Commodore, New York, March 11-13. Dr. Marion F. Langer, Room 210, 303 Lexington Ave., New York 16, Executive Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Ambassador Hotel, Atlantic City, N. J., April 10-16. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, The Homestead, Hot Springs, Va., March 14-16. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, Atlantic City, N. J., April 12-16. Dr. Philip Handler, Duke University, Durham, N. C., Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, Atlantic City, N. J., April 12-16. Dr. Cyrus C. Erickson, 874 Union Ave., Memphis 3, Tenn., Secretary.

AMERICAN SOCIETY OF MAXILLOFACIAL SURGEONS, Washington, D. C., April 25-28. Dr. Casper M. Epstein, 25 East Washington St., Chicago 2, Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Atlantic City, N. J., April 12-16. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

AMERICAN SURGICAL ASSOCIATION, Hotel Cleveland, Cleveland, April 28-30. Dr. R. Kennedy Gilchrist, 59 East Madison St., Chicago 3, Secretary.

ARIZONA MEDICAL ASSOCIATION, San Marcos Hotel, Chandler, April 25-28. Dr. Dermont W. Melick, 541 Security Bldg., Phoenix, Secretary.

ARKANSAS MEDICAL SOCIETY, Goldman Hotel, Fort Smith, April 19-21. Dr. J. J. Monfort, 215 Kelley Bldg., Fort Smith, Secretary.

CONFERENCE ON MICROCIRCULATORY PHYSIOLOGY AND PATHOLOGY, University of Texas, Galveston, Texas, April 8-9. Dr. Edward H. Bloch, Western Reserve University School of Medicine, Dept. of Anatomy, Cleveland 6, Chairman.

CONNECTICUT STATE MEDICAL SOCIETY, Bulkeley High School, Hartford, April 27-29. Dr. Creighton Barker, 160 St. Ronan St., New Haven, Executive Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 15-18. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN SECTION, AMERICAN CONGRESS OF PHYSICAL MEDICINE, Newark, N. J., April 10. Dr. H. L. Rudolph, 400 North Fifth St., Reading, Pa., Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, Convention Hall, Atlantic City, N. J., April 12-16. Dr. M. O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

FLORIDA MEDICAL ASSOCIATION, Hollywood Beach Hotel, Hollywood, April 25-28. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

INDUSTRIAL MEDICAL ASSOCIATION, Hotel Sherman, Chicago, April 27-30. Dr. Arthur K. Peterson, 28 East Jackson Blvd., Suite 1300, Chicago 4, Secretary.

IOWA STATE MEDICAL SOCIETY, Des Moines, April 25-28. Dr. Allan B. Phillips, 529 36th St., Des Moines 12, Secretary.

ISTHMIAN CANAL ZONE, MEDICAL ASSOCIATION OF THE, El Panama Hotel, Panama City, R. P., March 24-26. Dr. I. Robert Berger, Box "A," Balboa Heights, Canal Zone.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 11-16. Dr. Eugene H. Dibble Jr., John A. Andrew Memorial Hospital, Tuskegee Institute, Ala., Secretary.

MARYLAND, MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF, Baltimore, April 27-28. Dr. Everett S. Diggs, 1211 Cathedral St., Baltimore, Secretary.

MICHIGAN CLINICAL INSTITUTE, Sheraton-Cadillac Hotel, Detroit, March 10-12. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Mich., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, April 4-7. Dr. E. Royce Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CONFERENCE ON CARE OF THE LONG-TERM PATIENT, Edgewater Beach Hotel, Chicago, March 18-20. Dr. Dean W. Roberts, 615 N. Wolfe St., Baltimore 5, Director.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, Jefferson Hotel, St. Louis, March 10-12. Dr. F. M. Foote, 1790 Broadway, New York 19, Executive Director.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 8-11. Dr. Maurice E. St. Martin, Room 103, 1430 Tulane Ave., New Orleans 12, Secretary.

OHIO STATE MEDICAL ASSOCIATION, Columbus, April 13-15. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

PACIFIC NORTHWEST SOCIETY OF PATHOLOGISTS, Amphitheater, Dept. of Pathology, University of Washington School of Medicine, Seattle, April 23-24. Dr. John L. Whitaker, 315 South K St., Tacoma 3, Wash., Secretary.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

TOPEKA, KANS., March 19. Dr. William C. Menninger, 3617 West 6th Ave., Topeka, Kansas, Governor.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

FRENCH LICK SPRINGS, Indiana, French Lick Springs Hotel, March 15-17.

Dr. Carl H. McCaskey, 20 N. Meridian St., Indianapolis 4, Chairman.

MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.

SOCIETY OF NEUROLOGICAL SURGEONS, The Waldorf Astoria, New York, April 23-24. Dr. Edgar F. Fincher, Emory University, Ga., Secretary.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Tutwiler Hotel, Birmingham, Ala., March 8-11. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta, Ga., Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, Nashville, April 18-21. Mr. V. O. Foster, 706 Church St., Nashville 3, Executive Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Albuquerque, N. Mex., April 6-9. Sidney B. Clark, 314 U. S. Court House, El Paso, Texas, Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Del Monte Lodge, Pebble Beach, Calif., March 7-8. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ontario, Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Fisiología, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Marmot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitaire d O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6^e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary-General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Accuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentina, April 21-28, 1954. Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 14-18, 1954. For information write: Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isie-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary-General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de Mexico, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida, Cuauhtemoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12^e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geoffroy, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8º andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigaderio Luiz Antonio 651, Sao Paulo, Brazil.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION CONGRESS, Lake Garda, Italy, Sept. 15-21, 1954. Dr. Ada Chree Reid, 118 Riverside Drive, New York 24, N. Y., U. S. A., President.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lasmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Held in approved medical schools where there are five or more candidates. Dates: Feb. 9-10; April 20-21 (Part II only); June 22-23; Sept. 7-8 (Part I only). Candidates may file examinations at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take. New candidates should apply by formal registration; registered candidates should notify the board by letter. Sec., Dr. John P. Hubbard, 133 S. 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARKANSAS: Examination. Little Rock, June 10-11. Sec., Dr. Joe Verser, Harrisburg. Eclectic. Little Rock, June 11-12. Sec., Dr. O. L. Atkinson, 2528 Central Ave., Hot Springs National Park.

CALIFORNIA: Written. Los Angeles, March 15-18; San Francisco, June 21-24; San Diego, Aug. 23-26; Sacramento, Oct. 18-21. Oral. Los Angeles, March 13; San Francisco, June 19; San Diego, Aug. 21; Los Angeles, Nov. 20. Oral and Clinical Examination for Foreign Medical School Graduates. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO: Examination. Denver, June 8-9. Final date for filing applications is May 8. Reciprocity. Denver, April 13. Final date for filing applications is March 13. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT: Examination. Hartford, March 9-10. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. Homeopathic. Derby, March 9-10. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DISTRICT OF COLUMBIA: Examination. Washington, May 10-11. Deputy Director, Mr. Paul Foley, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D. C.

FLORIDA: Examination. Jacksonville, June 27-29. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami.

GEORGIA: Examination and Reciprocity. Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

ILLINOIS: Examination and Reciprocity. Chicago, April 6-8; June 22-24, and Oct. 5-7. Supt. of Registration, Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

INDIANA: Examination. Indianapolis, June 16-18. Exec. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA: Examination. Iowa City, June 14-16. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Examination and Reciprocity. Kansas City, June 9-10. Sec., Dr. O. W. Davidson, 872 New Brotherhood Bldg., Kansas City.

KENTUCKY: Examination. Louisville, June 7-9. Address Mr. Raymond F. Nixon, Assistant Secretary, 620 S. 3rd St., Louisville 2.

MAINE: Examination and Reciprocity. Portland, March 9-10. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Examination. Baltimore, June 15-18. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1.

MICHIGAN: Examination. Detroit and Ann Arbor, June 1954. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

MISSISSIPPI: Examination and Reciprocity. Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

MONTANA: Reciprocity. Helena, April 5. Examination. Helena, April 6-7. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA: Examination. Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: Examination and Reciprocity. Concord, March 10. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: Examination. Trenton, June 15-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Examination and Reciprocity. Santa Fe, April 12-13. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

OHIO: Examination. Columbus, June 14-16. Reciprocity. Columbus, April 13. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Examination. Oklahoma City, June 9-10. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Examination. Portland, April 23. Final date for filing applications is March 22. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

SOUTH DAKOTA: Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TENNESSEE: Examination. Memphis, March 24-25. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: Examination and Reciprocity. Fort Worth, June 21-23. Rec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: Examination. Salt Lake City, July 7-9. Final date for filing application is June 15. Director, Mr. Frank E. Lees, Department of Business Regulation, 314 State Capitol, Salt Lake City.

VIRGINIA: Examination and Reciprocity. Richmond, June 16. Address: Virginia Board of Medical Examiners, 631 First St., S.W., Roanoke.

ALASKA: On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

VIRGIN ISLANDS: Examination. St. Thomas, June 9-10. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. Reciprocity. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Examination. Tucson, March 16. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

ARKANSAS: Examination. Little Rock, May 3-4. Sec., Mr. Louis B. Gebauer, 1002 Donaghy Bldg., Little Rock.

FLORIDA: Examination. Gainesville, June. Sec., Mr. M. W. Emmel, University of Florida, Box 340, Gainesville.

NEBRASKA: Examination. Omaha, May 4-5. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln 9.

OKLAHOMA: Examination. Oklahoma City, April 16-17. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Examination. Portland, June 5, Sept. 11 and Dec. 4. Sec., Mr. Charles D. Bytne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Examination. June 11-12. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Examination. Memphis, March 17-18. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

TEXAS: Examination. April 1954. Location determined by number of applicants from different sections of the state. Sec., Brother Raphael Wilson, C.S.C., 407 Perry-Brooke Bldg., Austin.

WISCONSIN: Examination. Madison, April 3 and June 5. Final date for filing application is March 26 and May 28. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

*Basic Science Certificate required.

DEATHS

Hoyt, Robert Eustis * Capt., U. S. N., retired, Washington, D. C.; born in Portsmouth, N. H., Nov. 26, 1879; Harvard Medical School, Boston, 1901; fellow of the American College of Surgeons; in 1902 appointed an assistant surgeon with the relative rank of lieutenant (j. g.) in the Medical Corps, U. S. N.; promoted to captain, Medical Corps, U. S. N., in December, 1921; during his more than 44 years of naval service, commanded the Naval hospitals, Canacao, P. I., Portsmouth, N. H., Washington, D. C., Bethesda, Md., and Annapolis, Md.; commanded the Naval Medical Supply Depot, Mare Island, Calif., and the Naval Dispensary, Navy Department, Washington, D. C.; district medical officer of the 12th naval district, San Francisco, and the 14th naval district, Pearl Harbor, T. H., during the years 1934-1937; served on the U. S. ships Wabash, Texas, Newark, Chattanooga, Buffalo, Franklin, Michigan, Massachusetts, Idaho, Wisconsin, Minnesota, and the hospital ship, USS Mercy, as well as ashore at many Naval medical facilities; in 1946 awarded a letter of commendation, with ribbon, by the Secretary of the Navy for services in command of three naval hospitals from Dec. 7, 1941, until Sept. 2, 1945; placed on the retired list Jan. 1, 1943, and immediately recalled to active duty; released to inactive duty on Feb. 2, 1947; died in the Naval Hospital, National Naval Medical Center, Bethesda, Md., Dec. 19, aged 74.

Minnick, William Tell * Commander, M. C., U. S. N., retired, Philadelphia; born at Wabash, Ind., Aug. 7, 1879; Medical College of Indiana, Indianapolis, 1904; entered the Navy as a chief pharmacist's mate in 1908, and served in that capacity until appointed a lieutenant in the Medical Corps, Aug. 3, 1920; promoted to lieutenant commander, in 1931, and retired from active duty in December, 1931; recalled to active duty in 1939; promoted to commander in 1942 and released from active duty in 1945; veteran of the Second Nicaraguan Campaign and World Wars I and II; awarded the Navy Cross for having distinguished himself by extraordinary heroism and excellent judgment in the performance of duty as a medical officer attached to a small Marine expedition in an engagement near Quilali, Nicaragua, on Dec. 30, 1927; during more than 29 years of active naval service, served on the U. S. ships Galveston, Tennessee, Culgoa, Denver, Powhatan, and Kittery, at the Naval Medical School, Washington, D. C., and at other naval medical activities throughout the world; died Jan. 11, aged 74, of a heart attack.

Alcock, Nathaniel Graham * Iowa City, Iowa; born in Platteville, Wis., Jan. 18, 1881; Northwestern University Medical School, Chicago, 1912; professor emeritus of urology at the State University of Iowa College of Medicine, where he was on the faculty for 34 years; secretary of the Section on Urology of the American Medical Association from 1929 to 1932, when he became chairman; past president of the Iowa State Medical Society; charter member and past president of the Mississippi Valley Medical Society, which in 1949 presented him with its Distinguished Service Award; past president of the North Central Section of the American Urological Association; member of the American Association of Genito-Urinary Surgeons, American Urological Association, and the Clinical Society of Genito-Urinary Surgeons; chief urologist, Mercy Hospital, where he died Dec. 10, aged 72, of hypertensive cardiovascular disease.

Mulky, Carl * Albuquerque, N. Mex.; born in Knoxville, Iowa, in 1877; Chicago Homeopathic Medical College, 1899; Rush Medical College, Chicago, 1900; member of the council and past president of the New Mexico Medical Society; past president of the Bernalillo County Medical Society, New Mexico Trudeau Society, and the New Mexico Tuberculosis Association; member of the American Trudeau Society; fellow of the American College of Physicians; served during World War I;

formerly consultant in tuberculosis to the U. S. Indian Service; past president of the medical staff of the U. S. Indian hospitals, United Pueblos area; president of the medical staff and one of the founders of the State Tuberculosis Sanatorium in Socorro; on the staff of Southwestern Presbyterian Sanatorium; associate staff member, St. Joseph Sanatorium; died Jan. 14, aged 76, of chronic myocarditis.

Saunders, John Turner, Asheville, N. C.; born in St. Elmo, Tenn., July 26, 1898; Columbia University College of Physicians and Surgeons, New York, 1926; clinical instructor in orthopedic surgery at his alma mater from 1931 to 1934; certified by the National Board of Medical Examiners; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during World War I; affiliated with Memorial Mission, Aston Park, St. Joseph's, and Biltmore hospitals; consultant orthopedic surgeon at the Western North Carolina Sanatorium at Black Mountain; senior consultant orthopedic surgeon for the Veterans Administration Hospital at Oteen and the Asheville Orthopedic Hospital; died Dec. 23, aged 55, of diabetes mellitus and arteriosclerosis.

Gerard, Margaret Wilson * Chicago; born in Chicago Dec. 16, 1894; Rush Medical College, Chicago, 1925; fellow of the Institute of Medicine; member of the American Psychoanalytic Association, American Psychosomatic Society, and the American Orthopsychiatric Association; instructor in anatomy at Northwestern University Medical School from 1918 to 1922; formerly head of the psychiatric service in the University of Chicago's Student Health Service, and later assistant clinical professor of psychiatry and associate professor at division of biological sciences, University of Chicago; at one time psychiatrist at the Institute for Juvenile Research; since 1938 on the staff of the Illinois Children's Home and Aid Society; on the staff of the Institute for Psychoanalysis; died in the Passavant Memorial Hospital Jan. 12, aged 59, of rheumatic heart disease.

West, James Hubert * Tucson, Ariz.; born in Tiffin, Ohio, Dec. 14, 1887; Western Reserve University School of Medicine, Cleveland, 1915; specialist certified by the American Board of Radiology; member of the Cleveland Academy of Medicine and the Radiological Society of North America; life fellow of the American College of Radiology; charter member of the Cleveland Radiological Society; in 1916 commissioned first lieutenant and served with an Ohio National Guard Unit at Fort Bliss; in July, 1917, discharged for physical disability; until his retirement last July was affiliated with the Tucson Medical Center, Pima County General Hospital, and St. Mary's Hospital and Sanatorium, where he died Jan. 8, aged 66, of arteriosclerotic heart disease.

Evans, Everett Idris * Richmond, Va.; born in Norfolk, Neb., April 15, 1907; University of Chicago, The School of Medicine, 1937; professor of surgery and director of the surgical laboratory at the Medical College of Virginia; held a long-time research contract with the army on radiation burns and injuries, particularly in connection with atomic warfare; in 1948 was awarded certificate of appreciation by the army and navy for his research on surgical shock during World War II; member of the American Surgical Association and Southern Surgical Association; fellow of the American College of Surgeons; attending surgeon, Medical College of Virginia, Hospital Division, and Stuart Circle Hospital; died in Washington, D. C., Jan. 13, aged 46, of coronary occlusion.

Lanting, Roelof * East Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1929; specialist certified by the American Board of Preventive Medicine and Public Health; director of the Shiawassee County Health Department; formerly director of the Delta County Health Department, director of health district 7, comprising Clare, Gladwin, and

* Indicates Member of the American Medical Association.

Arenac counties, and director of the Lansing-Ingham county health unit; served in the European theater during World War II; lieutenant colonel in the air force reserve, attached to 439th Fighter Bomber Wing; affiliated with Owosso (Mich.) Memorial Hospital and Edward W. Sparrow Hospital in Lansing; died Dec. 13, aged 50, of injuries received in an airplane crash.

Ancerawicz, Albert Joseph, Kulpmont, Pa.; Temple University School of Medicine, Philadelphia, 1919; for six years county coroner; served during World War I; died in Danville (Pa.) State Hospital Dec. 24, aged 59, of cirrhosis of the liver.

Astley, George Mason, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1903; emeritus professor of surgery at Temple University School of Medicine; served during World War I; for many years on the staff of Woman's Hospital; affiliated with Temple University Hospital, where he died Jan. 15, aged 71, of myocardial infarction.

Bernstein, Eugene A., Boston; Harvard Medical School, Boston, 1952; certified by the National Board of Medical Examiners; resident at the Beth Israel Hospital, where he died Jan. 7, aged 34, of acute myelogenous leukemia.

Boland, Benedict Fenwick, Boston; Tufts College Medical School, Boston, 1920; professor of clinical gynecology at his alma mater; member of the New England Obstetrical and Gynecological Society; fellow of the American College of Surgeons; affiliated with Massachusetts General Hospital, Boston City Hospital, and St. Elizabeth's Hospital, where he died Dec. 24, aged 60, of hepatic and renal failure.

Brin, Alfred Ross, Monroe, La.; University of Texas School of Medicine, Galveston, 1938; specialist certified by the American Board of Urology; fellow of the American College of Surgeons; served during World War II and in 1945 received the certificate of merit; on the staffs of St. Francis Sanitarium and the E. A. Conway Hospital; died Jan. 18, aged 38, of acute leukemia.

Broomall, Harold Shoemaker, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1914; died Oct. 31, aged 65.

Bruno, Alexander, New York City; Columbia University College of Physicians and Surgeons, New York, 1913; fellow of the American College of Surgeons; member of the American Trudeau Society; during World War I served as a surgeon with the Red Cross with the rank of captain in France and received the award of the Cross of the Legion of Honor from the French government; died recently, aged 64.

Cohen, Benjamin, Chicago; Chicago Medical School, 1931; affiliated with the Chicago State Hospital; died Jan. 30, aged 53.

Cooper, Clifford, Titusville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1905; past president of the Crawford County Medical Society; served on the board of health of Titusville; resigned in January 1953 after many years as director of the Second National Bank; member and past president of the Titusville Hospital, where he died Dec. 5, aged 71, of retroperitoneal abscess.

Cuthbert, Fred Sheets, Kokomo, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; died Nov. 20, aged 77, of coronary thrombosis.

Daniel, John William, Savannah, Ga.; University of Georgia Medical Department, Augusta, 1896; served during World War I; past president of the Georgia Medical Society; formerly member of the state board of health; died Jan. 1, aged 85, of cardiovascular renal disease.

Davis, Deane Darling, Grove City, Ohio; Starling Medical College, Columbus, 1901; veteran of the Spanish-American War; died Jan. 8, aged 75, of acute coronary occlusion.

Ellis, Walter Winthrop, Delaware City, Del.; Jefferson Medical College of Philadelphia, 1905; past president of the New Castle County Medical Society; on the staff of the Delaware Hospital; vice-president of the Delaware City National Bank; died Nov. 27, aged 75, of coronary thrombosis.

Evans, Andrew Jackson, Mineral Wells, Texas; University of Louisville (Ky.) Medical Department, 1909; also a graduate in pharmacy; on the staff of Nazareth Hospital; died Dec. 10, aged 73.

Fort, James Arthur, North, S. C.; Atlanta School of Medicine, 1907; died Nov. 15, aged 73.

Fulton, Harry Lester, Fresno, Calif.; University and Bellevue Hospital Medical College, New York, 1932; member of the Medical Society of the State of New York; served during World War II; affiliated with Veterans Administration Hospital; accidentally shot and killed himself, Jan. 9, aged 46.

Garrett, Clarence Coleman, Fort Worth, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1927; editor of *Bulletin of the Tarrant County Medical Society*; died in All Saint's Hospital Jan. 1, aged 51, of essential hypertension.

Gittlow, Samuel, New York City; Columbia University College of Physicians and Surgeons, New York, 1912; an Associate Fellow of the American Medical Association; fellow of the American College of Physicians; past president of the Bronx County Medical Society, North Bronx Medical Society, and Bronx Pathological Society; consulting physician, Lebanon Hospital and Home and Hospital of the Daughters of Jacob; died in Miami Beach, Fla., Jan. 6, aged 64, of coronary occlusion.

Grudberg, Simon Charles, Kew Gardens, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1907; died in the Bellevue Hospital in New York City, Jan. 2, aged 69.

Hanavan, Eugene Joseph, Buffalo; University of Buffalo School of Medicine, 1915; affiliated with Our Lady of Victory Hospital in Lackawanna, N. Y.; on the staff of the Mercy Hospital, where he died Dec. 20, aged 64, of peritonitis and intestinal obstruction.

Harper, William Frantz, Selma, Ala.; Harvard Medical School, Boston, 1922; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; on the staff of the Selma Baptist Hospital; died Jan. 1, aged 57, of a heart attack.

Harwell, Carl Mallory, Osceola, Ark.; Memphis (Tenn.) Hospital Medical College, 1909; on the staff of the Osceola Memorial Hospital; died in Roanoke, Va., Dec. 26, aged 73, of coronary thrombosis.

Howard, John Richard, Lake Waccamaw, N. C.; Medical College of Virginia, Richmond, 1924; died in James Walker Memorial Hospital in Wilmington Dec. 24, aged 55, of arteriosclerotic heart disease.

Hunt, William West, East Providence, R. I.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; at one time police surgeon; served on the staffs of the Memorial Hospital in Pawtucket and the Rhode Island Hospital in Providence; died Dec. 18, aged 85, of cerebral thrombosis and arteriosclerosis.

Huntington, Ella Edwina, San Diego, Calif.; Pulte Medical College, Homeopathic, Cincinnati, 1900; died Dec. 20, aged 91, of carcinoma of the bladder.

Hurford, Phelps Grant, St. Louis; Washington University School of Medicine, St. Louis, 1908; served during World War I; died Dec. 13, aged 77, of heart disease.

Kandel, Harry Milton, Savannah, Ga.; University of Georgia Medical Department, Augusta, 1926; fellow of the American College of Physicians; served in World War II; formerly vice-president of the Georgia Medical Society; on the staff of St. Joseph's Hospital; died Jan. 4, aged 55, of cerebral hemorrhage.

Kleeberg, Felix, Levittown, N. Y.; Jefferson Medical College of Philadelphia, 1899; died Jan. 3, aged 85, of heart failure.

Lincoln, Robert Edward, Medford, Mass.; Boston University School of Medicine, 1926; served during World War II; died in the Ring Sanatorium in Arlington Jan. 30, aged 54, of acute myocardial infarction.

GOVERNMENT SERVICES

ARMY

Mrs. Wilder Retires.—Mrs. Helenor Campbell Wilder, chief of the section of ophthalmic pathology at the Armed Forces Institute of Pathology, Washington, D. C., recently retired after 30 years of service that brought her to the top in ophthalmic pathology. In 1953 she was honored as "Woman of the Year" for science by the Women's National Press Club, and she will soon receive the Exceptional Meritorious Award, the highest civilian award in the Department of Defense. Brig. Gen. Elbert DeCoursey, director of the Armed Forces Institute of Pathology, stated that her work has advanced the study of the eyes more than 50 years. The disease of the eye that was demonstrated by Mrs. Wilder to be due to toxoplasma had puzzled pathologists for generations. Her knowledge of ophthalmic pathology has taken her to lecture from Baltimore to Tokyo. She is the first woman to be elected an honorary member of the American



Academy of Ophthalmology and Otolaryngology. Mrs. Wilder is also a member of the American Association of Pathologists and Bacteriologists, which is the only time in the history of that organization that anyone has been accepted without an M.D. degree. The picture shows Mrs. Wilder admiring the gift presented her by the staff of the Armed Forces Institute of Pathology. Mrs. Wilder was recently married to Mr. Roland C. Foerster, and her home will be in San Francisco.

ATOMIC ENERGY COMMISSION

Symposium for High School and College Students.—Twelve of Oak Ridge's senior chemists will go to Atlanta, Ga., on March 5-6 to present an Oak Ridge symposium for college students and promising high school seniors in the Atlanta area. Emory University and Georgia Institute of Technology will serve as hosts for the symposium, the first to be presented by Oak Ridge scientists before a combined high school-college audience. Oak Ridge scientists have become increasingly conscious of an obligation to encourage young people to continue their education, to add to this country's basic strength. The Atlanta conference is an outgrowth of this feeling.

The symposium will be presented by the Oak Ridge Institute of Nuclear Studies and the Oak Ridge National Laboratory. Entitled "Atomic Energy and Chemistry," the symposium has

as its purpose stimulation of the interest of young people in chemistry as a profession. The program will include demonstrations of chemical equipment from Oak Ridge and a motion picture showing how chemistry contributes to the Oak Ridge research program. Among the speakers will be Dr. Clarence E. Larson, director, Oak Ridge National Laboratory, Dr. Ellison Taylor, assistant research director, and Dr. S. C. Lind, director of the laboratory's chemistry division. College students in all Georgia schools north of Macon and from high schools in a 50 mile radius of Atlanta are invited to conference. The first day's proceedings will be held on the Emory campus. The banquet and the second day's program will be held at Georgia Institute of Technology. Blake Van Leer, Georgia Tech president, will preside at the banquet and Goodrich C. White, president of Emory will speak at the opening session.

Oak Ridge National Laboratory is operated for the Atomic Energy Commission by Union Carbide and Carbon Corporation. The laboratory's main activities are in the fields of nuclear reactor development and technology as well as the production of radioactive isotopes for research purposes. The Oak Ridge Institute of Nuclear Studies is a nonprofit educational organization owned by 32 universities, carrying out a program of research and training in the nuclear sciences through a contract with the Atomic Energy Commission.

PUBLIC HEALTH SERVICE

Regular Corps Examination for Medical Officers.—A competitive examination for appointment of medical officers to the regular corps of the U. S. Public Health Service will be held on June 1-3. Examinations will be held at a number of points throughout the United States. Applications must be received no later than April 30. Appointments will be made in the grades of assistant surgeon (equivalent to Navy rank of lieutenant, j.g.) and senior assistant surgeon (equivalent to lieutenant). Appointments are permanent in nature and provide opportunities to qualified physicians for a career in clinical medicine, research, and public health. The requirements for both grades are U. S. citizenship, age of at least 21 years, and graduation from a recognized school of medicine. For the rank of assistant surgeon, at least 7 years of collegiate and professional training and appropriate experience are needed, and, for senior assistant surgeon, at least 10 years of collegiate and professional training and appropriate experience are needed.

The examination will include an oral interview, physical examination, and written objective tests covering the professional field. A copy of the applicant's birth certificate and of transcripts covering all undergraduate and professional education must accompany application forms. Entrance pay for an assistant surgeon with dependents is \$6,017 per year; for senior assistant surgeon with dependents, \$6,918. These figures include the \$1,200 annual additional pay received by medical officers as well as subsistence and rental allowance. Provisions are made for promotion at regular intervals up to and including the grade of senior surgeon (commander) and for promotion by selection to the grade of medical director (captain). Retirement pay after 30 years of service or at the age of 64 is three-fourths of annual basic pay at the time of retirement. Minimum disability retirement pay is ordinarily one-half of annual basic pay at the time of retirement. Additional benefits include periodic pay increases (time served as a member of the armed forces is credited), 30 days annual leave, sick leave, full medical care, and other privileges. Information may be obtained by writing to the Chief, Division of Personnel, U. S. Public Health Service, Washington 25, D. C. Completed application forms must be received in the Division of Personnel no later than April 30.

FOREIGN LETTERS

LONDON

Smokeless Zones.—Both the *British Medical Journal* and the *Lancet* recently discussed smokeless zones. In 1935, Charles Gandy, a Manchester barrister, proposed the principle of smokeless areas as a method of reducing smoke pollution in the industrial towns of England. The National Smoke Abatement Society, of which he was chairman, approached the Manchester Public Health Committee, with the result that the central area of the city was surveyed in 1938 as a first step in the creation of a smokeless zone. The outbreak of war held up the scheme, and it so happened that the area was heavily damaged by air attack. After the war, the area was again surveyed, and it was found that the premises within it, consisting mainly of offices, shops and only a few dwelling houses, had over 2,000 open fireplaces, most of which used bituminous coal. The heating system of many of the buildings had already been modernized, and coal had been replaced by electricity, gas, or coke. This central area was, therefore, deemed to be suitable for an experimental smokeless area.

In a smokeless zone the emission of smoke from any building is prohibited and there are penalties for breach of this rule. Smoke includes the visible and tangible products of incomplete combustion, but not such deleterious gases as sulphur dioxide. Local authorities are always required to contribute to the expenses incurred in making premises smokeless. There is no control over railway locomotives or of some mining processes—a freedom sometimes abused.

The creation of a smokeless zone is not without difficulties. It is essential to obtain the support of public opinion, and persuasion and diplomacy are required to convince owners and tenants of premises within the proposed zone that it will be a good thing for the community and themselves. Expert advice must be freely available so that the conversion of fuel-burning appliances will be the most suitable for particular conditions. Patient explanation must be given to demonstrate that efficiency and economy go hand in hand and that smoke, beside being a nuisance, is in itself a waste of expensive fuel. Serious difficulties arise in relation to industrial operations, but they are not insurmountable.

The results in Coventry and Manchester have been most satisfactory. The medical officer of health for Manchester, has been so impressed with the success of the first year's operation of the central zone that he has already recommended an extension of the zone. The city council has approved, and subject to the consent of the Ministry, the existing zone will be increased to more than double on Oct. 1, 1954. There are still large areas of Manchester left to be made smokeless. Manchester is the nucleus of a congested industrial area of nearly 3,000,000 persons. Although at first sight, to create a smokeless zone of about 100 acres would appear to be a quixotic gesture, with little hope of practical effect, such an effect has been achieved. The center of Manchester is already clearer; the haze of smoke outside the zone contrasts markedly with the absence of visible smoke within the zone. The press has commented favorably on "the hole in the fog." Business houses within the zone have written to the newspapers expressing appreciation of the results; commercial firms outside the zone have asked for extensions to include their premises; public opinion is strongly favorable, and further reduction of atmospheric pollution needs the support of the medical profession.

Need of Physicians' Records.—The problem of whether a physician should give information about his patients baffled a conference on Vital and Health Statistics held recently in London. Delegates (from 28 countries) agreed that it was not

yet possible to make a specific recommendation applicable in all countries and decided that further consideration was necessary. They accordingly proposed that the Expert Committee on Health Statistics continue to study the matter. Vital statistics require extensive use of records, the contents of which are ordinarily safeguarded by professional medical secrecy. Access to such data varies greatly in different countries. It was reported that devices to satisfy secrecy included identifying individual records by number rather than by name and sending such records in sealed envelopes. It was recognized that secrecy could not be kept where, for instance, a person suffering from a communicable disease had to be identified.

The conference was told also that physicians in certain countries had to be protected against the legal and psychological consequences of certifying certain causes of death. Safeguarding professional secrecy was, therefore, in some countries, desirable. Among recommendations made by the conference are those that follow. 1. A detailed census should be held at least once every 10 years. (This is already the practice in Britain, where there has been a census each decade since 1801, except in 1941.) 2. In intercensal years, annual population estimates should be made. 3. Sickness surveys should be carried out and should give the causes of absence from work. 4. In countries with underdeveloped services, mobile medical teams should obtain information. 5. All countries should set up national committees on health statistics. They would help to achieve uniformity in records. This first international conference of its kind was called by the World Health Organization.

MEXICO

Studies on Retinoblastoma.—Dr. Maximiliano Salas of the Hospital Infantil has reported (*Bol. méd. Hosp. infantil* 10: 499-530, 1953) that 49 cases of retinoblastoma have been studied in that institution. In 47 patients the condition appeared in the first five years of life and in 39 it appeared in the first three years. In 8 patients it was noted at birth and in 21 within the first few months of life. None of the patients were over 10 years old. Twenty-four were male and 25, female. The right eye was affected in 16 patients, the left in 26, and both eyes in 7. With the exception of one patient all appeared to have the sporadic type. The histological findings in 33 patients were typical, and the 16 remaining showed variable and nonspecific changes, but with a tendency to form the characteristic histological pattern in certain areas of the tumor. The degenerative changes, such as necrobiosis, necrosis, and hemorrhage, were constant, and calcification was frequent.

In the early diagnosis of retinoblastoma, the pediatrician is of first importance and to make an early diagnosis he should be constantly aware of the disease. With the slightest ocular manifestations, a thorough examination should be made, and, if the condition is found and an operation performed, the chances for recovery are greatly improved. The prognosis in the first period is favorable when the neoplasm constitutes a localized process. The prognosis in the fourth period when dissemination has occurred is extremely grave, and the treatment can be only palliative. Between these two extremes there are many gradations. In the present series, 7 patients died in the hospital and 17 with advanced disease left the institution at the request of their families. This gave a mortality of about 50%. Of the remaining patients, 8 were apparently cured and the remaining 17 were in the intermediate group with a variable prognosis for survival. All patients were given both surgical and radiological treatment. Once a patient has been operated on, the prospects for a second operation giving a beneficial result are poor.

Trichinosis in Mexico.—According to Dr. Luis Mazzotti (*Rev. san. panam.* 35:418 [Oct.] 1953), *Trichinella spiralis* was first identified in Mexico in 1896, by Toussaint, who found it in 13 cadavers he examined at Hospital de San Andrés, in Mexico City. No such investigation was made again until 43 years later, when Perrin in 1939 examined 200 human diaphragms by compression of 1 gm. of muscle and found that 25 had trichinae. Four years later, Mazzotti and Chavira examined 527 human diaphragms in Mexico City and found the parasite in 19. In the same year Mazzotti and Pastrana found that their method in which digestion was used was not as effective as had been thought, because a large number of cysts disappeared under the digestive action of the artificial gastric juice. They therefore continued their studies using only compression of 10 gm. of muscle and found parasites in 57 of 473 diaphragms. The incidence in Mexico is similar to that in the United States, where Wright, Kerr, and Jacobs (1943) found the parasites in 16% of 5,313 diaphragms. Gould (1943) in Michigan examined 357 diaphragms by compression of 10 gm. of muscle and found 29% positive. In 1938 Jacobs using compression only had found parasites in 6 of 100 diaphragms that had previously been studied by the compression and digestion method and were reported as negative. It appears that in Mexico the benign form of human trichinosis predominates and that the severe forms are rare.

NORWAY

Claims Against Physicians and Hospitals.—In 1953 Dr. Jon Björnsson published in a Norwegian law journal a review of the problems raised by accidents leading to claims for compensation against doctors and hospitals. He quoted a study by Dagfinn Dahl covering the period 1932 to 1944, during which one insurance society alone dealt with 162 claims for compensation. Among these claims there were only three that led to action in a court of law. Two-thirds of these claims were settled out of court by the payment of a sum agreed on by all parties, and one-third of the claims were dismissed. Some hospital was involved in 80 of these cases. Since 1944 there has been no great change in the situation, and insurance against claims is now taken out as a general rule by both physicians and hospitals. The natural desire of doctors to avoid publicity in this field and the tendency of law courts to give patients the benefit of the doubt at the expense of insurance societies have led to an unhealthy situation. Dr. Björnsson warned his readers that Norwegian insurance societies may take their cue from certain American societies that have lately refused to handle such claims against physicians and hospitals. Faced by the prospect of heavy damages awarded by law courts, insurance societies are being forced to quote almost prohibitive premiums.

A case quoted by Dr. Björnsson shows how the senior Norwegian public health officer, whose title is "health director," may make his influence felt in a reasonable settlement. The patient in this case consulted a physician for pain in the back. Rheumatism was diagnosed and rest in bed prescribed. When he did not recover, the man saw another physician who took a roentgenogram of the spine, which showed a slight fracture. The patient blamed his first doctor for not having taken a roentgenogram at once. This doctor had, however, not been told that the patient had been exposed to any strain likely to cause a fracture. Besides, pain in the back is so common that it would not be sensible to make it an indication for a radiological examination in every case. The health director explained the situation from this point of view and thus helped to pacify the patient. Dr. Björnsson concluded that many a conflict could have been avoided by the establishment of a more harmonious contact between patient and physician. In Denmark claims against physicians and hospitals are dealt with by a permanent board of medical experts possessing much experience in this field; however, a more casual arrangement exists in Norway with the appointment in each case of medical experts to give judgment.

Cancer of the Lungs.—On Dec. 4, 1953, Prof. Leiv Kreyberg presented a report to the Norwegian Academy of Science on the increase of cancer of the lungs. His material consisted of 233 patients with primary cancer of the lungs, observed over a five year period. After pointing out that as late as 1951 there had been some confusion over the nomenclature, he noted that since then there had been some improvement in this respect, and he was able to distinguish between six types of the disease, each with distinctive features that might help to throw light on its cause. The ratio of men to women for the entire series was four to one. Cases of adenocarcinoma, with a sex ratio of one to one, showed an uninterrupted rise of frequency from the age of 40 to the oldest age group. Professor Kreyberg called attention to a group that included three microscopically distinct subgroups and in which the ratio of men to women was 20 to 1. The age curve in this group was unusual in that the maximal incidence occurred between the ages 50 and 59. There was a slight decrease in incidence between the ages 60 and 69 and a marked fall between the ages 70 and 79. He endorsed Korteweg's views with regard to the lung cancer curve, the contour of which was largely determined by this particular age group.

The lung cancer curve has arisen for the most part in the present century and is the outcome of human action resulting in the occurrence of substances promoting cancer of the lungs, chiefly in men, possibly because of their vocations or their habits. The possibility of a sex factor in this process cannot be dismissed. Much of the rise of the cancer rate in men in Norway (from 15 cases in 1930 to 150 in 1950) probably reflects more accurate diagnosis. It is not likely that the real rate has been more than doubled or trebled in that period. At present cancer of the lungs is the fourth most common form of cancer in Norway; less than 6% of all the deaths from malignant tumors in men are due to it. The corresponding rate in Great Britain is about 25%. Barely half the Norwegian patients with cancer of the lungs have had a history tending to incriminate smoking. An analysis of 127 cases indicates that cancer of the lungs is commoner in Norwegian towns and industrial areas than in the country.

Local BCG Study.—When Dr. J. Heimbeck began in 1927 to vaccinate the tuberculin-negative nurses of Ullevaal Hospital with BCG, he also planned a study of the vaccine in the isolated Sollia district with a population of about 400 at that time. Tuberculin tests of 360 of these persons showed that 172 were positive and 188 were negative. Among these 188 were 147 who consented to the subcutaneous injection of 0.05 mg. of BCG. Thenceforth all three groups (the tuberculin-positive not vaccinated, the tuberculin-negative not vaccinated, and the tuberculin-negative vaccinated) were kept under close observation, the last examination being made by Heimbeck in the spring of 1953. In the *Tidsskrift for den norske lægeforening* for Dec. 15, 1953, Heimbeck published his recent findings. Among the 172 tuberculin-positive persons not vaccinated there was a tuberculosis morbidity of 2.4, a tuberculosis mortality of 1.1 and a mortality from other causes of 11 per 1,000 observation years. Among the 41 tuberculin-negative persons not vaccinated there was a tuberculosis morbidity of 2, a tuberculosis mortality of 1; and a mortality from other causes of 7 per 1,000 observation years. Among the 147 tuberculin-negative persons vaccinated, there was not a single case of tuberculosis throughout the 26 year period, but there were 5 deaths from causes other than tuberculosis. The relatively small number of deaths from causes other than tuberculosis could largely be traced to the persons in this group being younger than those in the first group. Heimbeck's follow-up study also included tuberculin testing in 1953 of the persons who had been vaccinated in 1927. Most of them were still tuberculin positive, but, as several of them had probably been exposed to infection with virulent tubercle bacilli in the interval, the persistence of a positive reaction was not necessarily the outcome of the vaccination. Over the years Heimbeck has learned to distinguish between the comparatively mild tuberculin reaction after BCG and the comparatively violent reaction after accidental infection with virulent tubercle bacilli.

CORRESPONDENCE

RETIREMENT FOR OLDER EMPLOYEES

To the Editor:—In the editorial "Inactivity or Employment for Older Workers" (*J. A. M. A.* 154:242 [Jan. 16] 1954) appears the statement: "The best solution is the creation of a panel to include one or more high level executives and the industrial physician to judge each case on its merits. . . ." In my opinion the presence of management representatives on such a panel is undesirable, as it arouses a sense of suspicion in the employee and among interested union officials. This distrust was apparent when, in 1952 at the request of the U.A.W.-C.I.O., the question of compulsory retirement of employees at age 68 was reviewed by officials of a corporation of which I was then medical director.

After a combined study, a new agreement superseding the existing contract was accepted. The salient features were those that follow. 1. Each union member is asked to report to the medical department for examination and evaluation several months before his 68th birthday. 2. The medical director is furnished data on the employee's job performance, his attendance record, and a detailed description of his job requirements. 3. After examinations have been completed, the medical director recommends either continued employment (at the worker's current job or at one of lesser requirements or reduced hours of work) or retirement. Copies are sent to the employee, personnel department, and the union. 4. If continued employment on the existing basis is recommended and accepted, re-examination and evaluation are carried out annually. 5. If continued employment on a modified basis is recommended but not accepted by the employee, compulsory arbitration is used to resolve the issues. 6. If retirement is recommended, the employee has 30 days to appeal. The union office is notified by copy. If appeal is taken, compulsory arbitration is initiated. In such cases, the arbitrator is a previously agreed on university hospital. Under this agreement the potentially frictional issue of compulsory retirement has been satisfactorily worked out. Nonunion employees and executive personnel should have the advantages of a similar retirement evaluation. I am not, however, aware of any such program currently in practice.

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SIMULTANEOUS SIGMOIDOSCOPY AND BARIUM ENEMA

To the Editor:—In *THE JOURNAL* (154:121 [Jan. 9] 1953) Jampel, Dewing, and Jacobson introduced a bold idea in their paper "Simultaneous Sigmoidoscopy and Barium Enema." The authors must be complimented for their courage and for their good intentions, but such courage can only lead to disaster. In the first place a complete sigmoidoscopic examination worthy of the effort must include inspection of the entire mucosa during the withdrawal of the instrument. If this is so, then it would be necessary to reintroduce the instrument for the barium enema. This would make the combined procedure superfluous. Second, leaving the sigmoidoscope in situ and allowing the patient to move from side to back or any other position is extremely hazardous. Sigmoidoscopic and barium x-ray examinations are usually performed on patients with suspected disease in the rectum or sigmoid. Severe injury, if not perforation, can be produced when the patient is moved while the sharp edge of the sigmoidoscope is in close contact with the mucosa. Third, the Sims' position has long been discarded as a satisfactory position for sigmoidoscopy. With the patient in this position, the instrument is difficult to pass, the entire mucosa is difficult to inspect, the physician is in an uncomfortable, awkward posture, and air inflation, which is irritating to the inflamed bowel, is almost always required.

The second to the last sentence of the case report in the article cited states, "The chronic inflammatory indurative process distorted the crypts and columns in the anal canal and

caused multiple fissuring of the crypts and anal skin." How was it possible to inspect the anorectal region during this combined procedure? It is obvious that this description belongs to another examination and that the simultaneous sigmoidoscopy and barium enema cannot be given credit for this finding. Although I respect the attempt, I can see no value to this combined procedure; in fact, it is dangerous, and I for one would not recommend it.

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STORAGE AND HOMOLOGOUS SERUM JAUNDICE

To the Editor:—The absence of risk of homologous serum jaundice as shown by J. Garrott Allen and associates (*J. A. M. A.* 154:103 [Jan. 9] 1954) by preservation of liquid plasma for six months is a matter of great therapeutic interest. During the years 1948-1951, I had a similar experience with lyophilized plasma. Sixty containers of Red Cross plasma collected during the war had been left in an abandoned Coast Guard dispensary on Cape Hatteras where the temperatures during the summer reach a subtropical high. Although the expiration date had passed, situations arose in which plasma was needed desperately. All 60 containers of two units each were eventually used. Not a single case of transfusion hepatitis or other complication developed. After this experience, I talked with a medical officer who had served in the Pacific and who, under similar circumstances, had used lyophilized plasma that had passed the expiration date. He also had noted the absence of serum jaundice.

I discussed the possible dangers of the use of such plasma with persons at the National Institutes of Health. They stated that the only possible danger could be the deterioration of the rubber stopper of the containers in which the plasma was preserved. This was minimized by the vacuum in the cans in which the bottles were kept. If this method of prolonged storage were turned to large scale use, it would be a simple matter to have the rubber stoppers changed at the end of two years and under aseptic conditions. It seems, therefore, that prolonged storage of lyophilized plasma under subtropic and tropic temperatures may be a complete preventive of serum hepatitis. While the number of cases are too small to be conclusive, I believe that with Allen's work they point the way to complete prevention of these transfusion reactions.

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THE PASSING MOMENT

To the Editor:—In reflecting on the interesting discussions in the recent Leisure Corner, a physician cannot help but try to analyze what is hidden behind this ambiguous term "leisure." Probably one of the most universal interests, especially among physicians, is photography. It seems justified to consider its emotional background in more detail. Perhaps such an approach may lead to a better understanding of the underlying dynamics and nature of leisure activities.

Currently the universal appeal of viewing and taking pictures is so well known and so much taken for granted that we no longer find anything amazing about it. Yet the invention of photography is only about a century old. While the medical and scientific uses are obvious, I am here concerned with the hobby as such. Many outstanding physicians have been and are distinguished amateurs (as in so many other artistic interests). My primary concern here, however, is the examination of why so many enjoy photography who are just simple snapshot fans without much merit. What are the deeper emotional forces that contribute to this widespread appeal and practice? What needs within us are fulfilled by taking pictures? As physicians we cannot help asking for the motives and underlying forces in our enjoyment, of which we certainly have little enough.

A few everyday expressions indicate how deeply imbedded photography has become in our daily lives. To focus attention, to retouch the facts, a blurred picture, the right angle, underdeveloped, to shoot a picture, to hunt for a subject, low key and high key, and to highlight are only a few. Artificial, newly coined words like Kodak and Leica have become as international as OK and dollar.

The universal urge to express ourselves by graphic means, such as drawing and painting, is as old as the history of mankind. The impulse to improve their technical potential was felt centuries ago, as was clearly expressed in the complaint of Lessing: "Would that we could paint with the eyes. How much is lost in the long road from eye to arm to pencil." It is well known from the language of primitive people, children, and dreams that we think in pictures long before we are capable of abstract forms of reflection. Mankind has preserved a universal language of picture symbols without knowing it. But it comes to the surface again even in today's growing desire of the person to express himself and in his increasing interest in personality. Goethe gives this as the reason why confessions, memoirs, letters and anecdotes of long gone, and even insignificant persons are so fascinating. In a deeper sense, both letters and pictures spring out of the same need. It is at this point that the right of the amateur must be reasserted. We are in the very real danger of exaggerating the critical attitude toward all works of art, as though the famous composers and painters had produced only for the sake of a few critics and judges. It cannot be stressed enough that their creative efforts were intended as communications for a specific purpose, a specific occasion, and a specific public.

Today when people no longer write diaries, the snapshots record their lives, as comics, picture magazines, and television replace reading. As a sign of real friendship, people show each other pictures of their early years. We smile when we see them standing before the statue of Lincoln or the Empire State Building, but such a picture satisfies the very real need to hold fast to that very moment—to confirm to themselves that they were once actually there. When we take pictures of people, we cannot help observing their varying reactions. Some immediately take on a conventional set smile, masking their natural expression, while others continue the usual rigid pose. Even national ideals are standardized in the sometimes painfully forced smiles of political leaders that custom dictates.

These considerations already lead us to a deeper analytical level. Hidden there lie forces that express themselves in the photographic urge. Nineteen years ago the late Dr. Wilhelm Lange-Eichbaum (1874-1949), who excelled in psychiatry, chess, writing, sailing, sculpturing, and last but not least, photography, wrote these reflections:

"One takes pictures out of the joy of looking, and also out of a thirst to possess. What has been seen must be had so that you can show it to others, either out of vanity as a hunting trophy (surpassing the rival in competition), or to store away and gather in for the memory of mankind. Furthermore, we take pictures for the thrill of chase and capture, out of desire for mastery of the technical miracle, out of the itch of curiosity. There is a nervous tension before the magic box: Will it come out all right? Also there is the creative joy; one becomes a begetter, a creative artist. Out of chaos, we create a world. Or, one portrays oneself. Technic permits us to make self portraits, thus the beloved eye is mirrored and preserved for all time. In addition, the I becomes expanded to eternity, as well as the spouse, the dog, the house and garden, and again and again, the children. With the mouthpiece of the camera, the ego devours the world like a gigantic snake. Thus the ego swells and inflates itself and becomes greater in its own eyes."

It is not accidental that we talk about "camera addicts," meaning fanatic devotion as miniature camera fans; "specialists" in portraits of men, dogs, flowers, and fashions; color devotees fight for their faith with religious zeal in endless bull sessions. This reminds us at times of the loyalty with which families cling to one make of automobile; for example, "We are a Dodge family". There is often the danger that the recording of an experience may overshadow the experience itself. Shooting the wedding is more important than the wedding itself. At

Yosemite Park, even young persons stare at night at color movies of Yosemite instead of roaming around to discover the beauties of the park for themselves.

The apparent overconcentration on the technical level of new developers, lenses, gadgets, which is elevated at times to a matter of faith, has also a positive value. It is an expression of a fact we tend to overlook; namely, that conscious choice and manipulation are also a primary source of pleasure. Kierkegaard spoke of this in a day when photography was generally unknown, when he observed that "the essence of pleasure does not lie in the thing enjoyed, but in the accompanying consciousness."

Like the motto on the sundial in Venice, we will record only the sunny, happy hours of life, like a receding pinpoint of light as the train of our life roars on through the tunnel of aging. As a person becomes aware of his diminishing vitality, he is anxious to leave a trace of himself after he is gone. Not everyone can leave sons or be a Shakespeare, Rembrandt, Edison, or Frank Lloyd Wright. Then more than ever, he is anxious to hold fast the fleeting moment before it has vanished forever. Who should be better prepared to experience the changing drift of events than a physician? It is, therefore, not incidental that so many physicians are attracted by the hobby of photography. It is not only medical photography, the latest offspring of the rather young art, that fascinates them, but the wide field of the art itself, sharing with our fellowmen the same human dream of everlasting youth, fighting against aging and wasting, by binding time as Joshua did: "Sun, stand thou still upon Gibeon."

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STRAMONIUM POISONING

To the Editor:—We have encountered four instances of stramonium poisoning in Philadelphia. Four Negroes, 16 to 38 years of age, each drank approximately 200 ml. of a "strong tea" prepared as a cold cure from Jimson weed (*Datura Stramonium* Linné) as identified by Drs. John Fogg and H. A. Wahl. The symptoms of toxicity developed within 30 minutes in each case and were very severe in all but one. They included nausea, vomiting, dizziness, loss of balance, incoordination, transient blindness, unconsciousness, and bizarre visual, auditory, and tactile hallucinations. These hallucinations, present in three of the four, were marked by extremely vivid overlays of color, particularly of red, but also of other colors throughout the visual spectrum. The patients came to the hospital for treatment 21 hours after the onset of toxicity. By that time the symptoms had considerably abated, although three patients continued to report dizziness and marked, variable abnormalities of color perception related at times to mild hallucinations. At least once, two concurrently reported the same hallucination. On physical examination all had markedly dilated pupils that reacted sluggishly to light; none exhibited mucous membrane dryness; and all denied previous dryness, thirst, or polydipsia (although two asked for water). Two had systolic and diastolic blood pressures in the upper range of normal, and the pulse rates were normal or slightly elevated. One showed a slight horizontal nystagmus and head shaking and one a mild intention tremor. Three had slight hyperreflexia and a slight tendency to maintain fixed positions. Temperatures were not taken. The examination was otherwise essentially normal. All the patients were sent home without therapy. Recovery occurred during the following few days.

The weed in this case was picked, four years earlier, in Augusta, Ga., for use, through the inhalation of its smoke, in the self-treatment of asthma. This is apparently not an uncommon practice in rural areas. Hughes and Clark presented a detailed review (*Stramonium Poisoning: Report of Two Cases, J. A. M. A. 112:2500 [June 17] 1939*) of stramonium poisoning, including the amusing report of several cases that occurred in Virginia in 1676.

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COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The publication of the following information concerning the provision for graduates of foreign medical schools as interns and residents in United States hospitals through the Exchange Visitor Program of the Department of State has been authorized by the Special Services Division, International Educational Exchange Service, Department of State.

Any hospital that is approved by the Council for intern and/or resident training may participate in the Exchange Visitor Program and may appoint graduates of foreign medical schools to its intern or resident staff without prejudice to its approved status. Responsibility for the evaluation of the applicant's qualifications must be assumed by the hospital, however, in those cases in which the applicant is a graduate of a school other than those included in the list prepared by the Council in collaboration with the Association of American Medical Colleges (THE JOURNAL, Sept. 12, 1953, page 133).

EDWARD L. TURNER, M.D., Secretary.

MEDICAL TRAINING UNDER EXCHANGE-VISITOR PROGRAM ARRANGEMENTS

Arrangements for admission of foreign medical students to serve internships and residencies in American hospitals are currently made in accordance with the Exchange-Visitor regulations promulgated under provisions of Section 201 of the United States Information and Educational Exchange Act of 1948, as amended. These regulations provide for the granting of Exchange-Visitor visas to various types of exchange visitors such as trainees coming to the United States to obtain practical training in public administration, industry, medicine, agriculture, or some other specialized field of knowledge or skill. Such visas can be issued, however, only to persons who have been selected by sponsors of programs that have been designated as Exchange-Visitor Programs by the Department of State.

American hospitals interested in providing medical training opportunities to foreign nationals are advised to establish Exchange-Visitor Programs under which qualified trainees may be selected as participants. Exchange-Visitor Program application forms (Form DSP-37) and information concerning the filing of such applications may be obtained from the Special Services Division, International Educational Exchange Service, Department of State, Washington 25, D. C. Prospective sponsors of medical training programs should be able to furnish evidence of their accreditation or approval by an appropriate board or agency for the training they wish to offer to foreign nationals. Under current regulations and policies the State Department requires this information as a prerequisite to designation of such a program. The agency or institution sponsoring an Exchange-Visitor Program is responsible for the selection of the foreign nationals who may be admitted as participants to engage in the activities provided in the designated program under its sponsorship. The department does not approve or confirm selection of participants under private sponsorship.

Although no change in status from that of Exchange-Visitor can be authorized under the Exchange-Visitor regulations, the transfer of an exchange visitor from one designated program to another may be effected if the alien's sponsor approves such a transfer and considers the arrangement to be consonant with the purpose for which the alien was admitted to the United States. A request for such a transfer should be made by the exchange visitor at the district office of the Immigration and Naturalization Service nearest his place of residence in the United States and must be supported by written evidence of his release from the program in which he is a participant as well as a letter affirming his selection as a participant in the designated program to which he wishes to transfer.

With respect to the staffing of American hospitals and institutions with foreign physicians or the need that such institutions may have to recruit assistance from foreign sources, recourse to other than Exchange-Visitor Program arrangements is available. Institutions desiring to employ foreign nationals temporarily may apply to a district office of the Immigration and Naturalization Service for authorization to import such persons under the provisions of Section 101(a) (15)(H) of the Immigration and Nationality Act. Further information concerning this procedure may be obtained from the nearest district office of that service.

MISCELLANY

THE DEATH OF PRESIDENT LINCOLN

"On the evening of Friday, April 14, I was summoned in haste to the late President of the United States, to whom I had the honor to be family physician. . . . [He] had been carried to the residence of Mr. Peterson, who resided on Tenth Street, opposite the scene of the deplored slaughter. . . . I found my friend, Assistant Surgeon Taft [and others] supporting the sufferer's head. . . .

"The case was surrendered to my care and I proceeded to the exploration of the wound. The President . . . lay, perfectly passive on his back as if quietly asleep, without any distortion of feature—though at times his respiration was somewhat stertorous. Examination showed that he had received a gun shot wound on the posterior aspect of the head—not far from the median line and about three inches from the left auditory meatus. . . . [His] left eye was blackened—the . . . orbital surface was ecchymosed. . . . The pupil of the right eye was very much dilated and immobile. The left pupil was unchanged, or if anything was myotic or diminished. . . . While engaged about him, rendering all the aid in our power, I noticed the appearance of a . . . purple spot at the internal angle of the right eye—This . . . gradually increasing in size, crowding the whole orbital periphery until the right eye was surrounded by a zone of the most intense ecchymosis. This gradually increased [and] the effusion was forced into the subconjunctival . . . tissue. . . . The ball of the eye became prominent by slow degrees until the zone around the . . . orbit was complete, and . . . the ball seemed to protrude one inch at least from its socket. After a short time, when the intensity of the left orbital ecchymosis had reached its [maximum] . . . the left pupil began to . . . dilate, until the dilation of both pupils was equal.

"When I first reached the . . . President, he was breathing quietly and calmly and I had hoped, he had received a less fatal injury, but in a few moments, his breathing became difficult and stertorous. On examining the wound, it was found that the orifice was plugged by coagula and debris of brain tissue. On cleaning this away, the wound bled steadily though not severely and instantly almost the stertor was removed and respiration became . . . regular. . . . The wound . . . gave the appearance of having been produced by a larger ball than that used in an ordinary revolver or pistol. The hair of scalp was not in the least burned—the edge of the wound was sharp and distinct. On probing the wound with the finger the projectile was found to have cut a distinct and perfectly round aperture . . . totally devoid of spicules of . . . either table of the injured occipital bone. . . .

"With a small silver probe, I attempted to follow the ball and recognized the pressure of a rough foreign body, whether bone or a fragment of ball, it was impossible to determine. Some inches further on, a larger body of the same character

From pen and ink manuscript written by Dr. Robert K. Stone, Lincoln's personal physician. This manuscript is in the collection of Dr. Max Thorek, Chicago, Ill.

was touched and passed, and the probe passed its full length without giving the . . . sensation of striking a metallic body. A longer . . . probe was procured by my friend, Dr. Taft, and with this, I proceeded to re-explore the track of the wound. The course of the wound with this . . . instrument was found to be forwards, upwards with a decided inclination inwards. The two foreign bodies already alluded to, were noticed and passed and the probe . . . struck against what, at first seemed to be the ball. But further exploration convinced me that I was striking a fractured bone. . . .

"During the evening the President's state varied. . . . We . . . had [a] large sinapism made and laid over his abdomen and extremities and as in a little time the mustard [was] found to have been useless . . . a new set of strong fresh sinapisms were prepared and his body and limbs enveloped in them. Bottles and jugs of hot water were placed near him and his extremities, to regulate the temperature. . . . All aid was useless [and] . . . we had to wait for the slow exhaustion of that vital energy, which a few short hours ago had promised so many years yet to come of happy life and goodness to all men. . . .

"The amount of brain tissue broken up and discharged from . . . the wound . . . must have been considerable. The gentlemen who were present and aided to remove the President to Mr. Peterson's house [said] . . . that much brain was lost in transporting the body across the street. During my presence, the loss of brain substance was considerable for the ball orifice was . . . evidently produced by a large projectile. At times when seated by, counting the pulse, I noticed that the stertorous breathing became very distressing and the flow from the wound was almost null. Suddenly there burst forth from the wound, on several occasions small masses of brain and coagula . . . followed by a gentle steady trickling of blood. This phenomenon was always productive of the greatest improvement—The respiration and pulse were instantaneously improved. It is impossible to say how much cerebral substance was lost. . . . The loss of blood was not very great, at any one time, but was steadily continuing in a gentle drain—unless when coagula and brain debris arrested the flow and then the stertor and labored breathing were distressingly painful to witness and its flow was at once [stimulated, thus] . . . prolonging life and depriving death of some attendant horrors, which would needlessly have harrowed the soul of the relatives and friends who . . . witnessed the passing away of this great man. . . .

"The next day previous to the process of embalmment, I proceeded to the autopsy of our late President. . . . Before proceeding to the autopsy, we noticed that the ecchymosis of the whites of eyes was very intense and had passed to the temples and malar surface. The right eye had lost its protrusion as heretofore described and again, fell back to its usual position. . . . On the occipital portion of the head . . . there was great . . . edema about the wound and some extravasation of blood. . . . The wound itself, seemed a clean cut gaping slit through the scalp—in the occipital bone itself, the ball orifice was a clean cut circular opening singularly free from all splinters . . . and appeared as if it had been cut through the bone, with a sharp punch—between the scalp and the bone orifices, we removed a little shaving of lead, which had evidently been pared from the ball, as it drove through the harder tissues.

"We . . . [divided the] scalp from ear to ear and [sawed] off the calvarium. When the scalp was removed we found that the ball had passed the occipital bone one inch to the left of the median line and had traversed the upper edge of the left lateral sinus a little to the left of the torcular Herophili. This wound in the occipital bone was remarkably smooth and . . . spherical in shape and bevelled off from without inwards so that the aperture of the internal table of cranium was decidedly larger than that of the outer table. Thence passing forward . . . the ball pierced the dura mater and through posterior lobe of the left hemisphere of the brain. Thence . . . it entered the left lateral ventricle of the brain behind

. . . ploughed the upper part of the thalamus . . . and lodged in the white cerebral substance just above the corpus striatum of the left side.

"In the track of the ball, the brain was in a pulpy disorganized state and around the track was pultaceous and livid from capillary hemorrhage. About 2½ inches in the track, within the orifice of the wound, the first piece of occipital bone . . . driven in by the ball was discovered. A second and larger fragment of the bone was discovered, further forward, about 4 inches within orifice, and the ball still further in. The track of the ball was filled with coagulated blood. . . ."

MEDICAL MOTION PICTURES

Some Aspects of Accessible Cancer: Part II—Lip, Tongue, and Mouth: 16 mm., black and white, sound, showing time 25 minutes. Produced in 1951 by Realist Film Unit, London. Principal advisors: Christie Hospital and Holt Radium Institute, Westminster Hospital. Procurable on loan (\$10.00) or purchase (\$90.00) from British Information Services, 30 Rockefeller Plaza, New York 20.

The quiet symptomless beginnings of squamous-cell epitheliomas in the lip, tongue, and mouth and the essential curability of these early lesions are stressed. The diagnosis and treatment of an early case of carcinoma of the lip by radium mold is shown, followed by a more advanced case treated by implantation. Radium implant for cancer of the tongue and surgery in which the lymphatics are involved are demonstrated. Methods of irradiating other cancers of the mouth with radium or roentgen-rays are also shown. Statistics are given to prove how much better the prognosis is when treatment is given early. This motion picture conveys a realistic picture of radiation therapy as it is now being carried out in England. From the standpoint of American specialists in head and neck carcinoma, there is far too much emphasis on radiation as against surgery; however, it would be of interest to specialists in this country as an illustration of currently used methods of therapy in England. The film is well organized, and the photography is excellent.

Some Aspects of Accessible Cancer: Part III—Larynx: 16 mm., black and white, sound, showing time 24 minutes. Produced in 1951 by Realist Film Unit, London. Principal advisor: the Royal Cancer Hospital. Procurable on rental (\$10.00) or purchase (\$90.00) from British Information Services, 30 Rockefeller Plaza, New York 20.

Photographs of tumors of the vocal cords as seen laryngoscopically are shown, and the help given by x-ray photographs is discussed. Treatment of the early case is by radiotherapy, but surgical extirpation is required for a more advanced growth. The highly effective esophageal voice that these patients can learn to produce is explained and demonstrated. This film stresses radiation and also surgery after radiation but not surgery alone. Although the emphasis on radiation therapy does not represent the consensus of opinion in this country, the film is of interest as an illustration of the British method of treating cancer of the larynx. The black-and-white photography is satisfactory.

Some Aspects of Accessible Cancer: Part IV—Breast: 16 mm., black and white, sound, showing time 28 minutes. Produced in 1951 by Realist Film Unit, London. Principal medical advisors: Westminster Hospital and the Royal Cancer Hospital. Procurable on rental (\$10.00) or purchase (\$90.00) from British Information Services, 30 Rockefeller Plaza, New York 20.

Any lump in the breast, however small and painless, must be taken seriously, and certain simple methods of examination are explained and demonstrated. Confirmation of diagnosis in the operating theater by frozen section of a suspicious tumor is shown, followed by radical mastectomy. A number of advanced cases are also illustrated, and the possibilities of radiotherapy, with or without surgery, are discussed. Hormone therapy is mentioned, and there is a brief section on carcinoma of

the male breast. This film is a review of the advantages of early diagnosis and definitive treatment as these have been observed in England. It gives in detail the technique of biopsy, examination for localized carcinoma, and the definitive operation. The discussion and representation of moderately and far-advanced carcinoma tend to stimulate the effective use of palliative treatment by radiation, surgery, and hormones. The statistics cited and the surgical philosophy are essentially the same as those in the United States. This motion picture is well organized and well presented, and the photography and narration are excellent. It is recommended for showing to medical students, residents, and interns.

Some Aspects of Accessible Cancer: Part V—Cervix and Uterus: 16 mm., black and white, sound, showing time 35 minutes. Produced in 1951 by Realist Film Unit, London. Principal medical advisors: Chelsea Hospital for Women, Christie Hospital, and Holt Radium Institute under the general supervision of Sir Stanford Cade, F.R.C.S., Malcolm Donaldson, F.R.C.S., and Dr. G. F. Stebbing. Procurable on rental (\$10.00) or purchase (\$90.00) from British Information Services, 30 Rockefeller Plaza, New York 20.

The potential seriousness of intermenstrual and postmenopausal bleeding in women over 40 is emphasized, and the patient's tendency not to take it seriously because it is painless is also pointed out. Methods of examining the cervix are shown and methods of radiotherapy explained and demonstrated. The greatly improved results of treatment at an earlier stage are contrasted with the high mortality later. The importance of curettage and histological examination for carcinoma of the body of the uterus is stressed. Surgery is the treatment of choice, and panhysterectomy with removal of tubes and ovaries is shown. The value of preoperative radiotherapy is also discussed. It is pointed out that by early diagnosis and treatment the mortality could be halved and that careful follow-up and early treatment of recurrences is often successful. This is an excellent teaching film and is recommended for general practitioners and medical students. The photography is well done.

NEW FILM ADDED TO A. M. A. MOTION PICTURE LIBRARY

America's Untapped Asset: 16 mm., black and white, sound, showing time 13 minutes. Produced in 1952 by Universal Pictures with the cooperation of the United States Employment Service, Office of Vocational Rehabilitation, Veterans Administration, and the Bankers Life and Casualty Company. Procurable on loan from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10, or President's Committee on Employment of the Physically Handicapped, 260 Madison Ave., New York.

This interesting film delivers its message very effectively. Its primary purpose is to persuade employers to hire the physically handicapped and to indicate that there are many types of employment in which the handicapped person can work just as effectively as, or sometimes even more effectively than, a normal person. The photography and the narration are all very good. The film starts with a record of an address given in Washington, D. C., on Sept. 23, 1953, by President Eisenhower to a group of approximately 2,000 persons, including members of the President's Committee on Employment of the Physically Handicapped. In this address, the President mentioned that there are many committees that carry the title of the "President's Committee." He said, "There is none that engages the interest of my heart, or of which I am prouder, than this one." The President mentioned an experience that he had had during World War II, when he requested of General Marshall the services of a fine corps commander. General Marshall replied that he agreed that this man was an excellent leader but that he had arthritis of the knees and he was afraid he could not get medical clearance for him. The President then replied, "Please send this man right away, quickly. It is his head and his heart I want, and I will carry him to battle in a litter. But a man, even though he has arthritis in the knees, is still fit to do the job I want." The President then concluded, "I am trying to show you that we can, after all, even in war, overemphasize this question of complete physical

normalcy. Incidentally, you will be glad to know the sequel, which was that that man led his corps brilliantly throughout the rest of the war and fully met every expectation that I had of him."

The film then goes on to develop the President's theme that a person who is disabled insofar as one function of the body is concerned can still perform brilliantly and is frequently able to overcompensate for his disability so that such persons are "ready, willing and able to work" and have demonstrated that "it is good business to hire the handicapped." A series of rapid views of the methods of medical rehabilitation of the disabled are given and then the major portion of the film is devoted to showing how more than 600 disabled persons have built up a good record as employees of the Bankers Life and Casualty Company. Deaf mutes are shown as excellent messengers who do not stop to converse with their associates. A deaf woman is shown doing paper work next to a person with normal hearing and working with equal efficiency. A one-armed secretary is depicted performing her various duties with great ability. A one-armed man is shown operating a complicated electronic machine, and a keen-eyed, gray-haired woman is shown operating a complicated machine with great rapidity. It is mentioned that this woman began her work at the age of 78, seven years ago! The film ends with a plea for everyone to cooperate with the President's Committee on Employment of the Physically Handicapped and states, "Hire the handicapped, it's good business."

All physicians and health workers who are interested in the employment of the handicapped should urge wide showing of this film among service groups and groups of employers.

BUSINESS PRACTICE

The following material is based on a public relations manual issued by the Public Relations Department of the American Medical Association.—ED.

SCHEDULING APPOINTMENTS

Mrs. Leslie hired a baby sitter so that she could come to see the doctor. She was kept waiting two hours. John Brinks, vice-president of a local company, missed an important committee meeting because he had to wait to see the doctor. The physician was not entirely to blame. He had been called away on an emergency, and his secretary had scheduled his appointments too closely. An appointment with the doctor is important to the patient; if he has to wait a long time, he becomes irritated and resentful. A recent survey showed patients complain twice as much about long waiting as about fees.

Even though emergencies make it difficult to eliminate all waiting, most physicians can cut unnecessarily long waits by practicing efficient scheduling of appointments. A waiting room costs money in terms of rent, furnishings, and upkeep. Today the trend is toward a smaller reception room, because more doctors are seeing patients on an appointment basis. A professional management official reports that a physician who switched to the appointment system saw one-third more patients in a month's time than previously but was not aware of it because he did not "feel pushed." Patients without appointments should be worked into the schedule if possible, but the physician or his assistant should say something like this: "The doctor will be able to see you this time but would appreciate your making an appointment the next time you come in." Patients soon learn that appointments save their time too.

Home calls should also be scheduled efficiently. A physician should urge patients to come to his office for treatment when possible, pointing out that the facilities for the best medical treatment are available there and that office calls are more

economical. One doctor's assistant routes his home calls by means of a large city map, thus saving him time that might otherwise be lost in aimless searching for streets and houses and in backtracking.

Efficient scheduling of appointments reduces strain on the physician and increases his ability to give his patients the best medical service. He should arrange office hours to fit community needs. Some doctors hold evening office hours two or three times a week for the convenience of working patients. All appointments should be scheduled with tact, patience, and finesse and should convey the impression that the doctor is trying to arrange a time when he can give the patient his complete attention. The appointment book should be marked off into time intervals. On the basis of past experience definite amounts of time should be allowed for first visits, check-ups, and other procedures. The schedule should be adjusted to fit the type of practice. Conflicting appointments should not be made, and the schedule should not be overcrowded. Two or three vacancies should be reserved during the day for catching up or as "breathers." House calls should be scheduled realistically at hours not conflicting with office hours. Referred patients and patients without appointments should be fitted into the schedule as judiciously as possible. Some physicians leave late afternoon and early evening appointments open for patients needing immediate attention. If it is necessary to refuse an appointment, a reason should always be given. When an emergency takes the doctor out of the office, the situation should be explained to waiting patients, giving them the choice of waiting or of making a new appointment. If it is necessary to cancel an appointment, the patient should be notified and a new appointment made. Patients should always be given a written or oral reminder of their appointment.

If patients are kept waiting long, they are due an explanation. The doctor or his assistant should make it clear that they are keenly concerned about the delay. When the doctor is unexpectedly called out of his office, his receptionist should say something like this: "Dr. Black has been called out of the office on an emergency. It may be an hour or so before he returns. He is very sorry to inconvenience you and asked me to inquire whether you want to wait or would like a new appointment. Perhaps you would like to shop and come back in an hour. I feel sure the doctor will be able to see you then." The patient's time is valuable too!

THE LEISURE CORNER

PLASTIC MODELS

Building really authentic models of ships, airplanes, automobiles, railroad cars, and similar objects requires intense concentration and an infinite amount of detailed, precise labor. Too deep a cut by the knife, a slip of the paint brush, and the model is ruined. After a while, this hobby may begin to take on an uncomfortable resemblance to work, fairly tedious and frustrating work at that. The manufacturers of plastic model kits have attempted to put the satisfaction back into hobby construction. Plastic model kits require no tools and no carving, cutting, or sanding. They can bring the pleasures of authentic model construction to those with limited manual skills as well as those with creative talents. Most physicians, of course, are skilled in the use of their hands, but time, a commodity especially rare in the life of a doctor, makes it almost impossible for him to devote to the hobby the days and weeks of intense and painstaking effort it takes to create an authentic model. Professional duties force him to postpone work on his hobby, and when he is able once again to settle down to it, it may be difficult to regain that first flush of enthusiasm. With plastic kit modeling, however, the physician or other hobbyist can, in a matter of hours and minutes, create a perfectly detailed replica

at about the cost of a dollar, not an unimportant consideration when the cost of pursuing some hobbies runs into hundreds of dollars.

The designing skill and the degree of precision engineering that a manufacturer puts into his plastic model kits determine their authenticity. One of the most exquisitely detailed models on the market today is the reproduction of the famous United States battleship, the Missouri. In making the model, the manufacturer created a 20 in. replica of the Missouri from actual U. S. Navy blueprints. It is cast in plastic with a one-piece hull and a one-piece deck that fits on top. Simply by adding the superstructure and other topside details, the hobbyist ends up with an absolutely precise model of the "Mighty Mo," which would bring joy to the heart of even the most accomplished professional model ship builder. For example, the accurate stem-to-stern details even include exact replicas of the tiny flags that flutter in the breeze high above the decks. This same company has "commissioned" virtually an armada of U. S. Navy fighting ships. The fleet includes the Missouri; the revolutionary Nautilus, the first atom-powered submarine; a patrol torpedo boat; a Fletcher Class cruiser; and a Baltimore Class cruiser. Should the "skipper" wish to get away from it all and indulge in a bit of luxury, there is a Chris Craft double cabin cruiser, which his talent can recreate. Precision engineering has made each ship a perfect reproduction. For example, engineering on the Nautilus is precise to the point of including a clear plastic housing on top of the conning tower, finely designed dual radio and radar antenna, attack periscope and snorkel, stabilizers and indicated torpedo ports in bow, deck grooving, hatch covers, elevators, rudder, and propellers at stern.

One of the unusual features of all these models is the inclusion of human figures in realistic positions and costumes. An alert has apparently been sounded on the patrol torpedo boat, for its men are at their battle stations ready to fire three 20 mm. machine guns and two 50 caliber twin engine aircraft guns.

The range of model subjects has grown to include reproductions of old-time sailing vessels, which can be slipped into bottles as attractive display pieces; replicas of the early covered wagons that first crossed the western prairies; smooth, sleek jet fighter planes, such as the Lockheed Starfire—the completely automatic Army plane, the Chance-Vought Cutlass—the Navy plane with dual turbojets and dual rudders, and the Grumann Cougar—the primary ship of the Marine flying corps. The Lockheed model is cast in aluminum plastic, has two miniature pilots, clear canopy, full color decals, and molded insignia.

Probably the most well-known of all plastic model kits are the Highway Pioneers, a series of authentic replicas of antique automobiles, such as the famed 1913 Maxwell, the 1911 custom-made Rolls Royce, the 1904 Oldsmobile, the 1903 Model "A" Ford, and the colorful 1914 Stutz "Bearcat," seen on virtually every university campus during its heyday. Naturally, no car is complete without its driver; thus a collegiate young man, mustached and becaped, sits at the wheel attired in a racoon coat. The company manufacturing antique automobiles produces 15 turn-of-the-century models, each equipped with a driver dressed in the fashion of his day. As all of the parts are premolded, the irritations involved in precision carving, whittling, and cutting are avoided. All that is needed is the ability to work with a tube of cement.

Many physicians have found modeling of such kits to be an excellent diversion for convalescing patients. Without undue effort, they are able to remain pleasantly and fruitfully occupied. Comment by thoughtful visitors on the rapid progress the patient is making in his hobby construction can be an invaluable morale booster. Plastic models lend themselves delightfully to attractive displays not only in the home but also as cheerful decorations in the physician's waiting room. The model maker can give his old-time cars a museum look by enclosing them in prefabricated clear plastic cases or he can display them as parts of book ends or name plates or as mantlepiece decorations. Plastic kit modeling affords a means of relaxation and enables father and son and the rest of the family to work together, jointly sharing and taking pleasure in the same hobby.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Dermat. and Syphilol., Chicago

68:619-754 (Dec.) 1953

- Atopic Dermatitis: Study of Its Natural Course and of Wool as Dominant Allergic Factor. E. D. Osborne and P. F. Murray.—p. 619.
- Asterol Treatment of Superficial Dermatomycoses Due to *T. Mentagrophytes* and *T. Purpureum*. E. Edelson and A. H. Haskin.—p. 627.
- Neomycin Lotion in Treatment of Cutaneous Bacterial Infections. M. A. Forbes Jr.—p. 631.
- *Cathode Ray Treatment for Lymphomas Involving Skin. H. F. Hare, J. L. Fromer, J. G. Trump and others.—p. 635.
- Comparison of Effects of Soaps and Synthetic Detergents on Hands of Housewives: Clinical Method. S. A. M. Johnson, R. L. Kile, D. J. Kooyman and others.—p. 643.
- *Quinacrine Hydrochloride (Atabrine) in Treatment of Lupus Erythematosus. R. R. Kierland, L. A. Brunsting and P. A. O'Leary.—p. 651.
- Superficial Fungus Infections in Infants. W. C. King, I. K. Walton and C. S. Livingood.—p. 664.
- Improvement in Technique of Dopa Reaction. G. Radaeli.—p. 668.
- Metabolic Calcinosis in Newborn: Report of Case. B. L. Schiff and A. B. Kern.—p. 672.
- Etiology of Superficial Mycoses in Midwestern United States. J. C. Sisk, W. E. Wooldridge and J. H. Lamb.—p. 681.
- Occurrence of Gynecomastia in Conjunction with Dermatologic Disorders. C. E. Wheeler, E. P. Cawley, H. T. Gray and A. C. Curtis.—p. 685.
- Pulmonary Hilar Enlargement Associated with Weber-Christian Disease: Report of Case. M. Dorfman.—p. 693.
- *Effect of Splenectomy in Acute Systemic Lupus Erythematosus. H. M. Johnson.—p. 699.
- *Effect of Cortisone and Corticotropin on Prognosis of Systemic Lupus Erythematosus: Survey of 83 Patients with Positive Plasma L. E. Tests. J. R. Haserick.—p. 714.

Cathode Rays for Lymphomas.—During the past two years the authors treated five patients having lymphomas with extensive involvement of the skin who had not responded to any other form of therapy, one patient with inner canthus carcinoma, one with atopic dermatitis, one with syphilis barbae, and three patients presenting keloidal scars. These patients were all treated by delivering to the involved skin area a number of doses of 2,500,000 volt electrons, these electrons being produced by a constant potential accelerator of the Van de Graaff type and projected into air toward the skin of the patient as a directed stream of particles. Of the five patients with mycosis fungoides, all but one received symptomatic relief from their skin lesions. The patient failing to receive palliation was one with advanced lymphoma and multiple nodes in the axilla and groin. All other patients have shown healing of their lesions, whether of the psoriasiform type or of the infiltrative tumor and ulcerated type. One patient whose disease was localized to the forearm received only one series of treatment, and the relief has been satisfactory for 16 months. The other patients had no untoward effects on their skins within an observation period of from 6 to 12 months. In two patients, a moderate to severe pancytopenia inexplicably developed; this condition was amenable to therapy. The superiority of cathode rays for the treatment of superficial malignant lesions lies in the unique ability to localize their ionizing energy so as to avoid both the irradiation of under-

lying tissue and the excessive irradiation of the radiosensitive skin. The optimum localization is attained when the high energy electrons enter normal to the skin surface and when they are of approximately the same energy. A further advantage of cathode ray therapy is that the depth of penetration can be controlled by adjustment of the accelerating voltage.

Quinacrine in Lupus Erythematosus.—During 1952, the authors treated with quinacrine (Atabrine) hydrochloride 60 patients with lupus erythematosus. Of these, 55 had the chronic discoid form of the disease and 5 had moderate systemic manifestations of lupus erythematosus. Thirty-nine patients were women, and 21 were men. Most of the patients had had the disease for many years prior to treatment with quinacrine, and only eight had not received previous therapy with gold, bismuth, arsenic, quinine, various hormones, and carbon dioxide snow. Of the 55 patients with the chronic form of the disease, 52 were followed to April, 1953. The following results were obtained: 11 patients were either not or up to 25% improved (1 reported that he was worse); 9 were 25 to 75% improved; 15 were more than 75% improved, but the disease was not arrested; and 17 had complete arrest of the disease. Twenty-one of the patients had discontinued taking quinacrine; 10 of them had recurrence and 11 no recurrence. The recurrences appeared after periods varying from two weeks to over six months. The incidence of ill effects was low, and it is noteworthy that this series of patients with lupus erythematosus showed that perceptible transitory yellowing of the skin, though a frequent effect of quinacrine and other therapy, is not a requirement in the production of good results. This is contrary to the prevalent opinion, which assumes that yellowing of the skin indicates the presence of fluorescence, the supposed efficient mechanism by which quinacrine relieves the symptoms of chronic lupus erythematosus. The authors state that a demonstrable fluorescence may be present long before the skin becomes yellow; and they also emphasize that the actual mechanism by which the drug exerts its influence is still unknown. Quinacrine is a valuable therapeutic agent in lupus erythematosus, except in patients with widespread cutaneous manifestations of the disease and patients in whom there is also laboratory evidence of the systemic type.

Splenectomy in Acute Systemic Lupus Erythematosus.—Recent work has attempted to define the physiology of the normal spleen. Johansen demonstrated in 1950 that the spleen, instead of secreting a hormone that inhibits the bone marrow, as was thought formerly, actually resorbs a factor that normally promotes the function of the bone marrow. The relation of altered physiology to the commonly accepted hypersplenic syndromes and to some conditions not thus commonly classified has been studied, but the resulting contradictory conclusions have not been clarified. There is, however, an increasing tendency to consider hypersplenism as an exaggeration of one or more of the normal functions of the spleen, thereby producing a pathological state. The results are presented of 12 splenectomies performed on patients acutely ill of systemic lupus erythematosus in Honolulu during the past seven years. In the first two, the disease was complicated by thrombocytopenia, and response to splenectomy was dramatic. The other patients showed favorable clinical and hematological changes. Splenectomy may usually be relied on permanently to eliminate thrombocytopenia, leukopenia, or acquired hemolytic anemia from the clinical picture of systemic lupus erythematosus; and the procedure is indicated when any of these manifestations are sufficiently severe to threaten the patient's well-being. The operation may be followed by a remission of systemic lupus erythematosus, but this may be no more than a temporary improvement.

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Titles marked with an asterisk (*) are abstracted.

Cortisone and Corticotropin in Systemic Lupus Erythematosus.—A survey is presented of 83 observed patients with positive plasma L. E. tests for systemic lupus erythematosus. Only 10 of them had not been treated with steroids (cortisone, hydrocortisone acetate, or corticotropin), since the first use of steroid therapy followed so closely the development of the L. E. test. There are two principal points on which the natural course of systemic lupus erythematosus can be compared with the course affected by steroid treatment: the length of time between the onset of symptoms and death, and the interruption of a rapidly lethal course. The L. E. test has revealed the fact that the disease may have an early latent phase without obvious symptoms and has therefore lengthened the possible overall duration of systemic lupus erythematosus to 90 months, against the estimate of 52 months made before the L. E. phenomenon was known. With this knowledge in mind, Haserick estimates that steroid therapy used without interruption over a long period of time has prolonged the life of a significant number of patients. The dosage used to maintain the remissions varied according to the individual requirements of the patients from 10 units of corticotropin to 100 to 125 mg. of cortisone acetate per day. Steroid therapy also occasioned an improvement in morbidity in some of these patients, enabling them to lead more normal lives and protecting them from certain infections that tend to complicate systemic lupus erythematosus. The dramatic lifesaving effect of steroids on a severe fulminating course of the disease is well established. Some patients, especially those with progressive renal disease, did not respond to steroid therapy, and some who had remissions discontinued steroid therapy, with disastrous results. The physician should be warned of this eventuality.

A.M.A. Arch. Neurology and Psychiatry, Chicago

70:687-820 (Dec.) 1953

- Hippocampal Seizures and Their Propagation.** J. D. Green and T. Shimamoto.—p. 687.
- Figure-Ground Discrimination and "Abstract Attitude" in Patients with Cerebral Neoplasms.** W. S. Battersby, H. P. Krieger, M. Pollack and M. B. Bender.—p. 703.
- Reflexes in Insulin Coma.** V. A. Kral and C. C. Smith.—p. 713.
- Aneurysm of Posterior Communicating Artery: Report of Five Additional Cases.** L. Madow and B. J. Alpers.—p. 722.
- *Genetic Aspects of Multiple Sclerosis.** R. Müller.—p. 733.
- Syringomyelia: Clinicopathologic Study.** M. G. Netsky.—p. 741.
- Autonomic Responses in Differential Diagnosis of Organic and Psychogenic Psychoses.** W. G. Reese, R. Doss and W. H. Gantt.—p. 778.
- Cold Pressor Test in Functional Psychiatric Syndromes.** W. W. Jergsheimer.—p. 794.
- Eosinophilic Response in Schizophrenic Patients: Influence of Diurnal Cycle and Type of Schizophrenia.** J. A. F. Stevenson, E. V. Metcalfe and G. E. Hobbs.—p. 802.
- Spinal Cord Compression Studies: I. Experimental Techniques to Produce Acute and Gradual Compression.** I. M. Tarlov, H. Klingner and S. Vitale.—p. 813.

Genetic Aspects of Multiple Sclerosis.—Of 750 patients with multiple sclerosis treated at two hospitals in Sweden in the course of 25 years, 27 (3.6%) had close relatives (parent, sibling, or child) with multiple sclerosis. Four of the 27 probands had two affected relatives, and 23 had one affected relative. Several of the probands were consanguineous. The 27 probands with an affected relative were thus distributed among 16 families. Of the 27 probands, 14 were women and 13 men. There was also a slight excess of women in the whole series. In 14 of the 27 probands the age of onset was less than 25; in 2 the onset of the disease was after the age of 40. In the entire series, 52% of the probands became affected before the age of 25, and 8% after the age of 40. The incidence of the disease in the probands' parents was $0.3 \pm 0.15\%$, in the siblings $1 \pm 0.21\%$, and in the children $2.3 \pm 1.15\%$. The calculations were based on Strömberg's "exact" method. The incidence of the disease in all the observed relatives aged over 9 years was $0.6 \pm 0.11\%$. The extent to which different genetic hypotheses are in agreement with the morbidity rate in the close relatives of the probands was investigated. The available data gave no support to the concept that genetic factors are active in multiple sclerosis.

A.M.A. Arch. Otolaryngology, Chicago

58:645-774 (Dec.) 1953

- One-Stage Radical Resection of Cervical Esophagus, Larynx, Pharynx, and Lateral Neck, with Immediate Reconstruction.** J. J. Conley.—p. 645.
- Choice of Operation in Carcinoma of Larynx.** A. J. Cracovaner.—p. 655.
- Basal-Cell Carcinoma of External Auditory Canal and Middle Ear.** H. Brunner.—p. 665.
- Shortening the Long Nose.** S. Fomon, J. W. Bell, A. Schattner and V. R. Syracuse.—p. 677.
- Notes on Innervation of Cochlea: II.** E. Bocca.—p. 690.
- Malignant Neoplasms of Paranasal Sinuses.** L. R. Cranmer.—p. 704.
- Foreign Bodies in Food and Air Passages: Survey of Cases at Army General Hospital.** F. L. Harcourt.—p. 710.
- Endoscopic Removal of Bronchial Adenoma.** S. Karatay.—p. 713.
- Correlation of Clinical Otitis Externa with Mycobacteriologic Studies.** N. Leshin.—p. 716.
- Embedded Calcified Foreign Body in Thoracic Esophagus: Review of Atypical Cases and Report of Case.** Z. J. Waters.—p. 726.
- Historical Comments on Human Vestibular Apparatus.** E. Wodak.—p. 733.

American Journal of Pathology, Ann Arbor, Mich.

29:993-1204 (Nov.-Dec.) 1953

- Portal Cirrhosis: Clinical and Pathologic Review of 782 Cases from 16,600 Necropsies.** E. M. Hall, A. Y. Olsen and F. E. Davis.—p. 993.
- Mylonecrosis, Extramedullary Myelopoiesis, and Leuko-Erythroblastosis: Mesenchymal Reaction to Injury.** R. J. Peace.—p. 1029.
- Systemic Nodular Panniculitis.** B. Steinberg.—p. 1059.
- Dissecting Aneurysm of Middle Cerebral Artery Associated with Migraine Syndrome.** W. Sinclair Jr.—p. 1083.
- Thrombosis and Pancreatic Carcinoma.** I. Gore.—p. 1093.
- Morphologic Changes of Exfoliated Cells in Effusions of Cancer Patients Following Induced Viral Infections: Preliminary Observations.** I. Koprowska.—p. 1105.
- Osteoid Formation in Giant Cell Tumors of Bone.** R. M. Shuffstall and J. E. Gregory.—p. 1123.
- Studies on Hamartomas: I. Cavernous Hemangioma of Epicardium.** L. Reiner and N. R. Silberg.—p. 1133.
- Similarities Between Lesions in Human Malignant Hypertension and in Hypertensive State of Nephrectomized Dog.** P. O'B. Montgomery and E. E. Muirhead.—p. 1147.
- Electron Microscopy of Yellow Fever Virus (17D Strain).** R. L. Reagan and A. L. Brueckner.—p. 1157.
- Electron Microscopic Studies of Erythrocytes from Patient with Infectious Mononucleosis.** R. L. Reagan, E. D. Palmer and A. L. Brueckner.—p. 1161.
- Meningo-Encephalitis in Pigeons.** E. Dougherty III and L. Z. Saunders.—p. 1165.

American Journal of Public Health, New York

43:1377-1500 (Nov.) 1953. Partial Index

- Hygeia: Service with Spirit and Ideals.** W. L. Halverson.—p. 1377.
- Principles of Immunization as Applied to Poliomyelitis and Influenza.** J. E. Salk.—p. 1384.
- *Local Health Hazards Among U. S. Army Troops Returning from Korea.** G. W. Hunter III.—p. 1408.
- Animal Diseases Transmissible to Man.** O. Sussman.—p. 1423.
- Bacteriological Safety.** A. G. Wedum.—p. 1428.
- Isolation of Salmonella Typhosa from Well Water by Membrane Filter Technic.** E. Collet, R. Johnston, L. F. Ey and C. C. Croft.—p. 1438.
- Further Studies of Tellurite Plating Media for Corynebacterium Diphtheriae.** M. Frobisher and E. I. Parsons.—p. 1441.
- Veneral Diseases—Present and Future.** N. J. Fiumara.—p. 1443.
- Housing Supervision in Local Health Department.** D. M. Bissell, T. F. McGowan and D. Myers.—p. 1452.
- Beef-Heart Charcoal Agar for Preparations of Pertussis Vaccines.** L. Mishulow, L. S. Sharpe and L. L. Cohen.—p. 1466.

Health Hazards Among Troops Returning from Korea.

After briefly listing diseases that were expected but not encountered in Korea, Hunter discusses the diseases that did occur; respiratory infections, venereal disease, diseases of the intestinal tract including diarrhea and dysentery and intestinal parasites, and the arthropod borne diseases such as Japanese B encephalitis, epidemic hemorrhagic fever, and malaria. He arrives at the conclusion that, from the standpoint of public health, there seems to be little danger of the introduction of transmissible diseases from Korea to the United States. The incidence of intestinal worms in U. S. Army veterans of the Korean campaign appears to be somewhat higher than elsewhere in the Far East. However, the density of the infection in any person is low and so should not constitute a public health problem. Malaria constitutes the greatest risk, but in view of the record it is believed that the calculated risk is minimal, provided adequate mosquito control is maintained.

American Review of Tuberculosis, New York

68:839-990 (Dec.) 1953

- Tuberculosis in Hawaii.* H. H. Walker.—p. 839.
Röntgenographic Spreads of Pulmonary Tuberculosis Occurring During Sanatorium Residence Before Use of Prolonged Chemotherapy. R. S. Mitchell.—p. 863.
Total Surgical Statistics in Treatment of Pulmonary Tuberculosis. W. B. O'Brien, N. J. Wilson, O. Armada and W. V. Vindzberg.—p. 874.
**Bilateral Resection in Pulmonary Tuberculosis.* L. M. Lowell and W. S. Conklin.—p. 885.
Extraperitoneal Lucite Ball Plombage. F. M. Woods and L. Buente.—p. 902.
**Chemotherapy of Miliary and Meningeal Tuberculosis in Adult: Report of Seventy Cases Observed Eight Months to Five Years.* E. J. Des Autels and K. H. Pfuetze.—p. 912.
Comparison of Tracheal and Gastric Lavage in Culturing of M. Tuberculosis. D. D. Deakins and L. M. Barber.—p. 926.

Bilateral Resection in Pulmonary Tuberculosis.—Bilateral pulmonary resections were made in 3 male and 14 female patients who were between the ages of 16 and 45 and had pulmonary tuberculosis. The tuberculosis was classified as minimal in 4, moderately advanced in 1, and far advanced in 12 patients. The sputum was positive for acid-fast bacilli before the first operation in all but one patient, and 14 had sputum positive for tubercle bacilli between the first and second resections. Thoracoplasty failure constituted the indication for three of the operations, pneumothorax failure for seven, a destroyed lobe previously untreated by collapse measures for one, tuberculous bronchial disease for eight, and localized caseous foci for 8; resection incidental to pulmonary decortication following pneumothorax therapy was done in three cases and upper lobe cavitation was the indication for four resections. In the 17 patients, 9 complete lobes, 32 segments, and 8 subsegments or wedges were removed; an average total of four segments, roughly the equivalent of a left upper or lower lobe, was removed in each patient at the two operations. One of the 17 patients died from progressive disease and complications. Two patients were operated on too recently for classification, but have no evidence of active parenchymal tuberculosis. Of the remaining 14 patients, 3 have lesions designated as "inactive" at 6 to 43 months, and in 11 patients the disease is classified as "arrested" 3 to 14 months after the bilateral procedure. At least 10 of these patients would have been considered to have had incurable disease without one or both resections. Bilateral resections in patients with pulmonary tuberculosis became more widely applicable as a result of antimicrobial therapy, which decreases the incidence of complications, and improved surgical techniques that permit resection of sublobar portions of the lung. It is anticipated that bilateral resection will shorten morbidity and provide the only means of cure for large numbers of patients with pulmonary tuberculosis.

Chemotherapy of Miliary and Meningeal Tuberculosis.—The survival rates of 70 patients who received two different regimens of chemotherapy for miliary tuberculosis, tuberculous meningitis, and combined miliary and meningeal tuberculosis with an observation period of at least eight months to more than five years are reported. Of the 70 patients, 44 were started on streptomycin or glucosulfone sodium (Promin) during the first three and one-half years of the study. The remaining 26 patients, in whom treatment was started during the next two and one-quarter years of the study, were given combined therapy with streptomycin and *p*-aminosalicylic acid, and some of them received in addition isoniazid. The survival rate of patients with "pure" miliary tuberculosis was 33.3% in the first group and 83.3% in the second group. The gross survival rate of patients with "pure" tuberculous meningitis was 13.6% in the first group as compared with 69.3% in the second group. The gross survival rate of patients with combined miliary tuberculosis and tuberculous meningitis was 10% in the first group and 71.4% in the second group. Survival rates thus were considerably higher for the second group at comparable periods of observation. It is believed that the prolongation of the original course of treatment with streptomycin from four months to at least one year or more and the addition of *p*-aminosalicylic acid contributed materially to the superior early results in the second group of patients. Since the addition of isoniazid, the results have been even better. The authors

are not convinced that the intrathecal administration of streptomycin is necessary in the treatment of tuberculous meningitis since intrathecal therapy did not appear to favorably influence the survival rates even before the advent of isoniazid. Current results suggest that even better survival rates may be attained providing the "original" course of adequate treatment with streptomycin combined with *p*-aminosalicylic acid and isoniazid is started early, given continuously, and is sufficiently prolonged.

American Surgeon, Atlanta, Ga.

19:1123-1210 (Dec.) 1953.

- Surgical Management of Massive Gastrointestinal Hemorrhage: Report of 39 Cases.* G. A. Olander.—p. 1123.
Acute Diverticulitis of Cecum: Report of Six Cases. C. C. Collins.—p. 1137.
Staging and Prognosis in Breast Carcinoma. A. J. McQueeney.—p. 1144.
Effects of Antihistamine Drugs on Fibroplasia. J. K. Berman, E. D. Habegger and E. J. Berman.—p. 1152.
Acute Obstruction of Left Colon. T. J. Anglem and R. A. Kenworthy.—p. 1162.
Intestinal Obstruction as Complication of Uretersigmoidostomy. G. T. Cowart and C. A. Fort.—p. 1167.
Acquired Short Fourth Metatarsal. W. L. Minear and S. M. Chasten.—p. 1171.
Islet Cell Adenoma of Pancreas: Case Report. L. T. Palumbo and L. R. Greco.—p. 1175.
Chronic Intussuscepting Carcinoid of Ileocecal Valve and Cecum: Case Report. J. A. Whiting, F. T. Wallace and R. S. Wilson.—p. 1180.
Vesical Calculi Following Suprapubic Prostatectomy. B. R. Harrow.—p. 1184.

Antibiotics & Chemotherapy, Washington, D. C.

3:1075-1182 (Nov.) 1953. Partial Index

- Importance of Identification and Nomenclature of Streptococci in Relation to Antibiotic Susceptibility Studies.* M. L. Koch.—p. 1081.
Cure of Resistant Meningococcemia with Erythromycin. E. A. Anderson.—p. 1091.
Stability Studies of Penicillin Products. F. H. Buckwalter and R. Holleran.—p. 1111.
Effect of Cortisone and Desoxycorticosterone on Infection with Tetanus Spores and upon Toxicity of Tetanus Toxin. A. E. Greene, J. L. Ambus and L. Gershenfeld.—p. 1121.
Protective Action of Fungicidin (Nystatin) in Mice Against Virulence Enhancing Activity of Oxytetracycline on Candida Albicans. E. L. Hazen, R. Brown and A. Mason.—p. 1125.
Effect of Formo-Cibazol Alone and in Combination with Chlorotetracycline on Bacterial Flora of Colon of Man. M. Marmell, J. C. DiLorenzo, L. T. Wright and W. I. Metzger.—p. 1129.
Penicillin O. J. H. Ford, B. W. Churchill and D. R. Colingsworth.—p. 1149.
Identification of Antibiotics. H. Fischbach and J. Levine.—p. 1159.

Arizona Medicine, Phoenix

10:383-418 (Nov.) 1953

- Trichomonas Vaginitis—A Perennial Problem.* E. W. Overstreet.—p. 383.
Management of Peripheral Arterial Occlusive Disease. T. Winsor.—p. 387.
Nephrotic Syndrome. D. B. Manley.—p. 393.

Bulletin of Johns Hopkins Hospital, Baltimore

93:275-354 (Nov.) 1953

- Studies of Peripheral Blood Vascular Beds in Bulbar Conjunctiva of Man.* A. L. Grafflin and E. G. Corddry.—p. 275.
Effect of Cortisone upon Reactions of Rabbits to Bacterial Endotoxins with Particular Reference to Acquired Resistance. I. L. Bennett Jr. and P. B. Beeson.—p. 290.
Association of Adult-Type Coarctation of Aorta with Endocardial Fibroelastosis in Infancy. E. H. Oppenheimer.—p. 309.
**Study of Role of Adrenocorticotrophic Hormone (ACTH) in Pathogenesis of Tubular Degeneration of Adrenals.* O. M. Wilbur Jr. and A. R. Rich.—p. 321.

Tubular Degeneration of Adrenals.—Wilbur and Rich say that several years ago, one of them directed attention to a peculiar type of adrenal cortical damage that occurs in several acute infections, and pointed out that when the lesion is extensive it is commonly accompanied by peripheral circulatory collapse. The typical Waterhouse-Friderichsen clinical syndrome, particularly when occurring in adults, is often associated with this adrenal lesion in the absence of the extensive adrenal hemorrhage to which the circulatory collapse of that syndrome is ordinarily attributed. The lesion, which was termed "tubular

degeneration" of the adrenal cortex, consists essentially in scattered necroses of single or several cortical cells, shedding of the vacuolated cytoplasm of others, and exudation of fluid from adjacent capillaries into the cortical cell cords, with the resulting conversion of the normally solid cords of cortical cells into tubular structures lined by flattened cells that have lost much of their cytoplasm. The lumens of the "tubules" may appear empty or may contain protein, fibrin, a few polymorphonuclear leukocytes and occasional necrotic cortical cells. The studies presented here aimed to determine whether excessive stimulation of the adrenal cortex by sterile, more purified adrenocorticotrophic hormone could produce the lesion and, if so, what amount of the hormone would be required and how rapidly the lesion could be induced. Adult male Wistar albino rats were the experimental animals. The experiments demonstrated that neither the state of infection nor a direct action of bacterial toxic products on the adrenals is necessary for the development of the lesion. The amount of exogenous corticotropin required to produce the lesion in normal animals under the conditions of these experiments was very large, but reasons are given for believing that, under the conditions of fulminant infection, the pituitary may produce an amount of adrenocorticotrophic hormone sufficient to cause the lesion. The effect of severe tubular degeneration on the blood pressure in the face of infection and the effect of tubular degeneration on the ability to withstand infection and other forms of stress are important questions that can be experimentally investigated by the present method of producing the lesion, and the authors have begun studies directed toward those ends.

Cancer Research, Chicago

13:753-820 (Nov.) 1953

Microscopy: II. Electron Microscopy: Review. C. C. Selby.—p. 753.
Pituitary and Adrenal Factors Involved in Azo Dye Liver Carcinogenesis. C. H. Robertson, M. A. O'Neal, A. C. Griffin and H. L. Richardson.—p. 776.
Carboxypeptidases and Carboxypeptidase Inhibitor in Tumor-Bearing Animals: Possible Blood Test for Neoplasia. R. N. Feinstein and J. C. Ballin.—p. 780.
Clinical Evaluation of Blood Cell Carboxypeptidase Inhibitor Test for Malignant Neoplasia. J. C. Ballin, R. N. Feinstein and N. E. Warner.—p. 784.
Studies on Metabolism of Acetate- C^{14} in Tissues of Tumor-Bearing Rats. H. Busch.—p. 789.
Phospholipid and Protein-Bound Phosphorus Synthesis in Rabbit Papilloma. W. E. Cornatzer, D. G. Gallo, J. P. Davison and R. G. Fischer.—p. 795.
Incorporation of Labeled Methionine in Vitro by Tissues of C3H Mice. J. B. Melchior and A. H. Goldkamp.—p. 798.
3-Methylcholanthrene as Inhibitor of Hepatic Cancer Induced by 3'-Methyl-4 Dimethylaminoazobenzene in Diet of Rat: Determination of Time Relationships. R. J. Meehan, D. E. McCafferty and R. S. Jones.—p. 802.
Effect of Thyroid Function on Tissue Metabolism of Tumor-Bearing Rats. S. B. Barker and H. S. Schwartz.—p. 817.

Geriatrics, Minneapolis

8:579-628 (Nov.) 1953

Formation of Third Coronary Artery by Internal Mammary Artery Implant. A. Vineberg.—p. 579.
*Flat Heads Among the Aged Due to Thin Parietal Bones. J. Gershon-Cohen, H. Schraer and N. Blumberg.—p. 596.
*Treatment of Gout. J. H. Talbott and L. M. Lockie.—p. 599.
Surgical Measures in Hypertension. J. E. Thompson and R. H. Smithwick.—p. 611.
Care of the Aged. N. O. Hanson.—p. 622.

Thin Parietal Bones Among the Aged.—A curious flat depression of the posterior horizontal portion of the parietal bones due to localized thinness has been observed in some cases. Epstein recently suggested a relationship between this parietal thinness and postmenopausal, senile, or idiopathic osteoporosis. The present report deals with a roentgenographic study of parietal thinness as it was encountered in a group of 130 aged normal persons, comprising 48 men and 82 women, ranging from 67 to 93 years of age. X-ray examination of the skull was part of a complete roentgenographic skeletal survey of each subject. More than two-thirds of these subjects revealed generalized nutritional osteoporosis, varying from minimal to moderate in degree; several had marked osteoporosis. Five persons, with parietal thinness, an incidence of 3.3%, were

found in this group. All of these subjects had moderate skeletal osteoporosis. This compares with an incidence of 0.001% found by the older anatomists and an incidence of 0.46% found by Camp and Nash after a two year roentgenographic study at the Mayo Clinic. In reviewing the opinions of other anatomists and anthropologists on this subject, the authors say that Greig concluded that parietal thinness was congenital and represented a dysplasia. Some evidence of this possibility was added by Camp and Nash who encountered parietal thinness in the young as well as in the aged. When one considers that the parietal bones are the last to develop and are more subject to changes such as congenital lacunae and trauma, it is not surprising that areas of segmental deploic atrophy with thinning of the parietal bones should occur as variations in ordinary development, simply becoming more prominent in aging atrophic bones.

Treatment of Gout.—Talbott and Lockie call attention to the resurgence of interest in the various articular disorders and evaluate the present status of knowledge on gout with particular emphasis on treatment. They believe that the oral administration of colchicine is the method of choice for the treatment of the acute attack. Phenylbutazone (Butazolidin) and corticotropin may be recommended in selected instances. Colchicine is indicated for each patient periodically in the intercritical period. A powerful uricosuric agent such as probenecid (Benemid) may be used together with colchicine but does not replace it. Avoidance of obesity and restriction of purine-containing foods and fats are desirable. A liberal portion of protein daily is permitted. A high fluid intake is stressed. Prognosis is favorable in most patients.

Journal of Clinical Investigation, New York

32:1197-1366 (Dec.) 1953

*Prevention of ACTH-Induced Sodium Retention by Use of Potassium Salts: Quantitative Study. G. W. Liddle, L. L. Bennett and P. H. Forsham.—p. 1197.
Comparative Studies of Serum Polysaccharides in Rheumatoid Arthritis and Degenerative Joint Disease. M. R. Shetlar, R. W. Payne, J. A. Bullock and others.—p. 1208.
Fructose in Treatment of Diabetic Ketosis. J. H. Darragh, R. A. Womersley and W. H. Meroney.—p. 1214.
Quantitative Study of Digitoxin Content of Edema Fluids. S. St. George, C. F. Naegele, F. S. French and others.—p. 1222.
Iron Absorption in Dogs During Anemia Due to Acetylphenylhydrazine. W. B. Stewart, P. S. Vassar and R. S. Stone.—p. 1225.
Studies on Thalassemia: Part I. An Extracorporeal Defect in Thalassemia Major; Part II. Effects of Splenectomy in Thalassemia Major with an Associated Acquired Hemolytic Anemia. H. C. Lichtman, R. J. Watson, F. Feldman and others.—p. 1229.
Adrenal Cortical Regulation of Distribution of Water and Electrolytes in Human Body. A. G. Hills, T. M. Chalmers, G. D. Webster Jr. and O. Rosenthal.—p. 1236.
Erythrocyte Metabolism: Metabolic Behavior of Cholesterol of Human Erythrocytes. I. M. London and H. Schwarz.—p. 1248.
*Studies on Composition of Fibrinoid Material of Subcutaneous Nodule of Rheumatoid Arthritis. M. Ziff, T. Kantor, E. Bien and A. Smith.—p. 1253.
Use of Radioactive Chromium 51 as an Erythrocyte Tagging Agent for Determination of Red Cell Survival in Vivo. F. G. Ebaugh Jr., C. P. Emerson and J. F. Ross.—p. 1260.
Some Clinical, Biochemical and Genetic Observations on Hemoglobin C. H. M. Ranney, D. L. Larson and G. H. McCormack Jr.—p. 1277.
Hemodynamic Effects of Hypotensive Drugs in Man: III. Hexamethonium. E. D. Freis, J. C. Rose, E. A. Partenope and others.—p. 1285.
Direct Measurement of Extracellular Phase of Tissues. G. Nichols Jr., N. Nichols, W. B. Weil and W. A. Wallace.—p. 1299.
Body/Venous Hematocrit Ratio: Its Constancy Over Wide Hematocrit Range. H. Chaplin Jr., P. L. Mollison and H. Vetter.—p. 1309.
Bacterial Digestion of Collagen. J. D. MacLennan, I. Mandl and E. L. Howes.—p. 1317.
Isolation and Characterization of Proteinase and Collagenase from *Cl. histolyticum*. I. Mandl, J. D. MacLennan and E. L. Howes.—p. 1323.

Prevention of Sodium Retention by Potassium.—Administration of large doses of either corticotropin or the adrenal steroids results in sodium retention that is often accompanied by increased excretion of potassium in the urine and by a decrease in intracellular potassium. In order to minimize potassium depletion, it has become common practice to add supplements of potassium salts to the diets of patients receiving large doses of corticotropin or cortisone. The use of such supplements was also found to be extremely effective in overcoming the sodium retention induced by corticotropin and by

cortisone. The present study was designed to clarify the mechanism of the sodium diuresis that follows the ingestion of large amounts of potassium salts. Experiments were made on 14 subjects: 7 had rheumatoid arthritis, 1 disseminated lupus erythematosus, 1 dermatomyositis, 1 gout, 1 multiple sclerosis, 1 hyperinsulinism, 1 Cushing's syndrome, and 1 no demonstrable disease. In most experiments, potassium salts were administered orally in small divided doses; in a few cases, the potassium salt was given by continuous intravenous infusion. Corticotropin was administered intramuscularly, either in aqueous solution every 6 hours or in 16% gelatin every 24 hours. When either cortisone acetate or hydrocortisone was used, the daily dose was divided into four equal parts administered orally every six hours. It was found that the oral administration of large doses of either potassium chloride or potassium acetate consistently results in a diuresis of sodium. The degree of sodium diuresis is greater in subjects in whom sodium retention has been induced by corticotropin or cortisone than in untreated subjects. The administration of potassium chloride and potassium acetate results in a decrease of urinary phosphate, ammonia, and titratable acid and an increase in urinary bicarbonate and chloride. The increase in urinary sodium is proportionately much greater than the increase in urinary chloride. Two possible mechanisms may account for the natriuretic effect of potassium salts: (1) displacement of body Na^+ by K^+ , and (2) suppression of renal tubular $\text{H}^+ = \text{Na}^+$ exchange. Sodium retention due to therapeutic doses of cortisone or corticotropin can be consistently prevented by the daily administration of 200 mEq. or more of potassium.

Composition of Fibrinoid of Rheumatoid Nodules.—Fibrinoid has been described as a "homogeneous, eosinophilic, refractile, relatively acellular, band-like structure which has some of the tinctorial properties of fibrin." It is found in the connective tissue in the group of "diffuse collagen diseases," including rheumatic fever and rheumatoid arthritis, lupus erythematosus and scleroderma, and periarteritis nodosa. The fibrinoid material of five subcutaneous nodules obtained from patients with rheumatoid arthritis was extracted by treatment of fresh nodule tissue with either dilute sodium hydroxide or trypsin. The extracts of fibrinoid were analyzed for hydroxyproline by a sensitive radioisotope derivative technique and found to contain between none and 0.3 mg. of hydroxyproline per gram of nodule tissue. Collagen content of the nodule tissue ranged between 70.8 and 159 mg. per gram. From the relative areas of collagen and fibrinoid present in microscopic sections of untreated nodules, the approximate concentration of fibrinoid was estimated. Values varied between 17 and 40 mg. per gram. The maximum amounts of collagen that could be present in the extracted fibrinoid, calculated from the hydroxyproline content of the fibrinoid extracts, were found to be about 2% by weight of the fibrinoid. The results indicate that if collagenous material is at all present in the fibrinoid of the subcutaneous nodule, the amounts are negligible.

Journal of Experimental Medicine, New York

98:521-692 (Dec.) 1953. Partial Index

- An Absolute Method for Assay of Virus Hemagglutinins. S. Levine, T. T. Puck and B. P. Sagik.—p. 521.
- Studies of Hypersensitivity to Low Molecular Weight Substances: II. Reactions of Some Allergenic Substituted Dinitrobenzenes with Cysteine or Cystine of Skin Proteins. H. N. Eisen and S. Belman.—p. 533.
- Effect of Tuberculin and Cortisone Singly and in Combination on Ex-plant Tissues of Guinea Pigs, Mice and Rabbits. M. Holden, B. C. Seegal and L. B. Adams.—p. 551.
- Regression of Transplanted Lymphomas Induced in Vivo by Means of Normal Guinea Pig Serum. J. G. Kidd.—p. 565.
- Ergastoplasm: Its Fine Structure and Relation to Protein Synthesis as Studied with Electron Microscope in Pancreas of Swiss Albino Mouse. J. M. Weiss.—p. 607.
- Antigenic Composition of Influenza Virus Measured by Antibody-Absorption. K. E. Jensen and T. Francis Jr.—p. 619.
- Epidemiologic and Immunologic Significance of Age Distribution of Antibody to Antigenic Variants of Influenza Virus. F. M. Davenport, A. V. Hennessy and T. Francis Jr.—p. 641.
- Myocarditis and Pulmonary Arteritis in Mice Associated with Presence of Rickettsia-Like Bodies in Polymorphonuclear Leucocytes. A. M. Pappenheimer and J. B. Daniels.—p. 667.

Journal of the Mount Sinai Hospital, New York

20:237-284 (Nov.-Dec.) 1953. Partial Index

- *Use of Radioactive Gold in Treatment of Effusions Due to Cancer. N. Simon, J. Abrams, M. Khilani and others.—p. 237.
- Integration of Psychosomatic Viewpoint in Medicine. M. R. Kaufman.—p. 247.
- Accessory Lung—Unusual Variations. G. P. Seley.—p. 257.
- Afibrinogenemia in Pregnancy: Diagnosis and Treatment. H. Chessin and J. C. Greenwald.—p. 263.

Radioactive Gold in Treatment of Effusions Due to Cancer.—Simon and associates say that the radioactive gold used at Mount Sinai Hospital in New York City is in the form of a purple-colored radioactive colloidal suspension emitting about 30 mc. per cubic centimeter. The method of introducing the solution into patients is described and explained in a diagram. Radioactive colloidal gold is used in serous effusions to selectively irradiate the lining membrane of the serosal cavity without effecting undue radiation to other portions of the body. On disintegration Au^{198} emits a beta particle of 0.98 mev and gamma rays of 0.12 and 0.41 mev. The beta particles are absorbed in the first millimeter of serosal lining and deliver most of the biologically effective radiation. The gamma rays contribute an insignificant fraction of the radiation dose to the serous membranes, but their high penetration is advantageous, since they can be counted externally when the radioactive preparation is within the patient's body. The authors review observations on 14 patients who were treated with Au^{198} because of pleural effusions secondary to malignant tumors. The administered dose ranged from 25 to 89 mc. The radioactive gold was injected after aspiration of most of the pleural fluid. All patients tolerated the injected gold well. Peripheral blood cell counts were done at frequent intervals in some of the patients, and no leukopenia or thrombocytopenia resulted. Six of the 14 patients had carcinoma of the breast, 4 carcinoma of the lungs, 3 lymphoblastoma, and 1 carcinoma of the fundus of the uterus. Seven of these 14 patients derived benefit from the radioactive colloidal gold treatment. Favorable results were manifested by a decrease in the frequency of chest taps to relieve dyspnea. The histories of three of the patients who responded favorably are briefly presented. The radioactive gold in the circulating blood is less than 0.2% of the dose injected. The gold in the blood is protein-bound to the alpha and beta globulins as demonstrated by filter paper electrophoresis.

Journal of Neurosurgery, Springfield, Ill.

10:557-700 (Nov.) 1953

- Subdural Hematoma Occurring in Surgically Treated Hydrocephalic Children: With Note on Method of Handling Persistent Accumulations. L. M. Davidoff and E. H. Feiring.—p. 557.
- *Surgical Treatment of Saccular Intracranial Aneurysms: Report of 56 Consecutively Treated Patients. H. F. Steelman, G. J. Hayes and H. V. Rizzoli.—p. 564.
- Studies of Pressures in Carotid Artery of Patients Undergoing Cerebral Angiography. W. E. Stern.—p. 577.
- Osteitis Deformans with Spinal Cord Compression: Report of Three Cases. F. R. Latimer, J. E. Webster and E. S. Gurdjian.—p. 583.
- *Treatment of Internal Carotid Artery Aneurysms by Proximal Arterial Ligation: Follow-Up Study. S. P. W. Black and W. J. German.—p. 590.
- Technique and Dangers of Cerebral Angiography. G. F. Rowbotham, R. K. Hay, A. R. Kirby and others.—p. 602.
- Paraplegia Caused by Spontaneous Spinal Epidural Hemorrhage. E. C. Shultz, A. C. Johnson, C. A. Brown and W. H. Mosberg.—p. 608.
- *Controlled Hypotension at Intracranial Operations. P. E. Wiklund.—p. 617.
- Sympathectomy of Upper Extremity: Evaluation of Surgical Methods. B. S. Ray.—p. 624.
- Surgical Treatment of Aneurysms of Anterior Communicating Artery. G. Norlén and A. S. Barnum.—p. 634.
- Surgical Treatment of Deafness Following Meningitis. W. T. Grant.—p. 651.

Surgery of Saccular Intracranial Aneurysms.—Fifty-six consecutive patients with surgically treated intracranial aneurysms are reported. The over-all surgical mortality was 3.6%, and 7% of the patients had a postoperative hemiplegia. Of 14 patients treated by ligation of the carotid artery in the neck, none died and 1 was rendered hemiplegic. Of 42 patients, 17 who had trapping of the aneurysms between an intracranial clip and ligation on the carotid artery in the neck, 13 who

had trapping of the aneurysm between intracranial clips, 10 who had occlusion of the neck of the aneurysmal sac, and 2 who had packing or reinforcing with muscle or absorbable gelatin sponge (Gelfoam), 2 died (both in the group that had trapping between intracranial clips) and 3 became hemiplegic. The authors feel that a successful program of surgical treatment of intracranial aneurysms depends on careful study of the patient by means of arteriography, with careful selection of patients on whom surgery is to be performed. The following factors were used by the authors in deciding on or against surgery: location of the aneurysm, age of the patient, size of the neck of the aneurysm, the general and neurological condition of the patient, his ability to tolerate carotid compression for 30 minutes (Matas test), and the likelihood of producing an intolerable deficit if it were necessary at operation to sacrifice the artery feeding the aneurysm. The surgeon must decide what is the optimal time for operating during the clinical course of the patient's disease; it must be after the vital and neurological signs of the original attack have leveled off, but before a possible hemorrhage. The danger to life and neurological function is a calculated risk that must be assumed when the decision to operate is made. The outcome of surgery often depends on factors that cannot be forecast or avoided. The surgeon must not only have every detail of the operation planned in advance but be ready for any situation that may present itself. Until he can offer the patient a better chance for improvement with surgery than without, the patient should not be subjected to surgery.

Ligation of Carotid Artery Aneurysms.—Aneurysms of the internal carotid artery, both in the cavernous and cerebral portions, have been treated by proximal arterial ligation in the neck at the Surgery Clinic of the Yale University School of Medicine since 1936. The present series of patients numbers 35, of whom 27 were alive at the time this paper was written. Of the nine patients with aneurysms in the cavernous portion of the internal carotid artery, one died of periarteritis nodosa three years after ligation. Of the 26 whose lesions were in the cerebral portion of the artery, 2 died in connection with the operation, 1 was in a critical condition, and the other was the only patient in the series who had multiple aneurysms. Five patients died after leaving the hospital; two probably of recurrent intracranial bleeding, two apparently of other causes, and one of an unknown cause. The authors feel that their method is reasonably benign and effective in achieving the twofold therapeutic purpose that they envisage—the reduction of strain on the aneurysm with maintenance of adequate circulation to all parts of the brain. While the principle of proximal ligation for intracranial aneurysm is largely on an empirical basis, a study of the stresses operating on the aneurysm—total hydrostatic pressure in the parent artery, the pulsatile nature of the flow, turbulence, and jet action—tends to indicate that the procedure has a sound theoretical basis.

Controlled Hypotension at Intracranial Operations.—The author reports on 60 patients who had controlled hypotension induced by hexamethonium at various intracranial operations. The series comprised 34 women and 26 men operated on at the department of neurosurgery of Serafimerlasarettet, Stockholm, Sweden, between January and November, 1952. The diagnoses in these cases were arterial aneurysm, 28; arteriovenous aneurysm, 4; meningioma, 15; neurinoma, 5; glioma, 3; intracranial metastases, 2; chordoma, 1; Jacksonian epilepsy, 1; and malignant hypertension (hypophysectomy), 1. The postoperative mortality was five patients. Four died from their disease; in only one was the induced hypotension and subsequent treatment contributory to death. Fifty-five patients were discharged after an average hospitalization of 15 days. Four of them underwent reoperation for postoperative hematomas; but there were no other serious postoperative complications. Postoperative shock occurred in no case. The three main indications for controlled hypotension in intracranial surgery are arterial aneurysms, highly vascular tumors and malformations, and rise in intracranial pressure and cerebral edema. Hypertension is generally not a contraindication, since the dangers of a fall in blood pressure of short duration are outweighed by those of rupture of a tumor or aneurysm and hemorrhage. Contraindications are grave cardiac and renal changes, pul-

monary and extrapulmonary processes that considerably impair the oxygen uptake, and shock or impending shock. Hypotensive agents should accordingly be used to preclude bleeding and not be employed as a last resort when the hemorrhage has already substantially reduced the circulating blood volume.

Laryngoscope, St. Louis

63:1025-1144 (Nov.) 1953. Partial Index

- Review of Available Literature on Pharynx and Pharyngeal Surgery for 1952. F. E. LeJeune and M. Lewis Jr.—p. 1025.
 *Tuberculous Otitis Media. L. J. Wallner.—p. 1058.
 Efficacy of Wetting Agent (Duponol-C) as Aid in Treatment of Laryngotracheobronchitis: Preliminary Report. L. C. Dickey.—p. 1078.
 Classification of Carcinoma of Larynx. F. E. Leborgne.—p. 1089.
 Problem of Blue Eardrum: Idiopathic Hemotympanum. W. R. Johnston.—p. 1096.

Tuberculous Otitis Media.—The patients whose cases are reviewed by Wallner were seen in consultation during the past five years at two large tuberculosis hospitals. Among a comparatively large number of patients with otitis media, there were 52, in whom there was presumptive evidence of tuberculosis of the ear. Over 200 patients in the same hospital population had the diagnosis of tuberculous laryngitis. The patients seen at these two hospitals were mostly adult men, and all were being treated for pulmonary tuberculosis. The most frequent symptom was aural discharge. Other frequent complaints were tinnitus, a feeling of fullness or blocking of the ear, and defective hearing. The functional tests indicated a conduction type of hearing impairment. The diagnosis of unilateral otosclerosis seemed the most plausible one. The subsequent appearance of inflammatory alterations of the drum membrane, or of discharge, revealed the true nature of the disease. The author says that when he first cared for tuberculous patients, a phthisiologist remarked that any case of discharging ear developing in a person known to have pulmonary tuberculosis could be considered to be tuberculous in origin. This apparently rash statement was confirmed by further experience. The diagnosis of specific infection of the ear depends largely upon the history of painless onset of aural discharge in a person with pulmonary tuberculosis. The otoscopic appearance may not be unusual, and demonstration of acid-fast organisms may be most difficult. The finding of a well-pneumatized mastoid in chronic otitis media may be evidence of tuberculous etiology. The treatment and prognosis of this disease have been completely altered. If seen early, before perforation has occurred, chemotherapy may result in complete resolution of the tuberculous process in the ear. All ear complaints in tuberculous persons, especially tinnitus, a feeling of fullness, or loss of hearing should receive prompt attention. Early diagnosis and chemotherapy may prevent perforation and preserve hearing.

New England Journal of Medicine, Boston

249:829-870 (Nov. 19) 1953

- *Tuberculous Meningitis: Combined Therapy with Cortisone and Antimicrobial Agents. S. J. Shane and C. Riley.—p. 829.
 Influence of Weight Reduction on Amenorrhea in Obese Women. G. W. Mitchell Jr. and J. Rogers.—p. 835.
 Cardiovascular Effects of Cervicothoracic Vagotomy in Human Being. R. S. Fraser and C. B. Chapman.—p. 837.
 Cardiologist Looks at Hand. J. J. Silverman and D. S. Littman.—p. 839.
 Food Poisoning. K. F. Meyer.—p. 843.
 Subendocardial Infarction: Report of Two Cases. C. E. Ernst and C. Fisch.—p. 853.

Cortisone Combined with Antimicrobial Agents in Tuberculous Meningitis.—Three adult patients between the ages of 28 and 36 years and four children between the ages of 9 months and 12 years with tuberculous meningitis received combined treatment with cortisone and antimicrobial agents. Treatment was usually begun with 200 to 300 mg. of cortisone daily by mouth when practicable, but intramuscularly when oral administration was not possible. This was usually accompanied by the intramuscular administration of streptomycin or dihydrostreptomycin in doses of 1 gm. daily, and p-aminosalicylic acid orally. In one patient, streptomycin was withheld because of a history of hypersensitivity and was re-

placed by full doses of isoniazid. With the exception of one patient who was given intrathecal injections of streptomycin for a short period, this route of administration was not used. The original dose of cortisone was maintained for every patient until there was decided improvement in the clinical and laboratory findings, and then gradually diminished by decrements of 50, 25, or 10 mg. In all patients a final dose of 5 to 10 mg. daily was continued for varying periods before the drug was finally discontinued. Antimicrobial therapy with one or more drugs was carried on for three to six months after discontinuation of cortisone. Serial x-ray examinations of the chest were made at intervals of two weeks, in view of the known propensity of cortisone to reactivate apparently healed tuberculous lesions. No evidence of the development or reactivation of tuberculous pulmonary disease was noted in any of the patients. Of the seven unselected patients, five recovered and two died. Necropsy was performed in the latter cases and microscopic evidence of regression was noted in the miliary lesions in all organs examined. In one patient, the resolution of an established subarachnoid block occurred in the course of the combined treatment, and, in another, there was evidence that the development of an incipient block was suppressed by cortisone. In one patient clinical and bacteriological relapse, which had occurred after neurosurgical treatment with burr holes, was reversed by the combined treatment with cortisone and antimicrobial agents. Microscopic studies of the tuberculous exudate and other tissues in the two fatal cases revealed a striking lack of cellularity in the tissues and exudates of patients treated with cortisone, as compared with sections from patients treated by conventional methods. It is highly probable that this suppressive action on exudate formation is the prime factor in preventing the sealing off of the strategic foramina at the base of the brain, which frequently may result in irreversible hydrocephalus. The use of cortisone in the presence of active tuberculosis appears to be a safe procedure, provided that it is adequately covered by effective antimicrobial therapy. The importance of early diagnosis and early institution of treatment is again emphasized.

Pediatrics, Springfield, Ill.

12:471-592 (Nov.) 1953

- Recent Studies on Immunization Against Poliomyelitis. J. E. Salk.—p. 471.
 Homozygous Type "c" Hemoglobin. T. H. Spaet, R. H. Alway and G. Ward.—p. 483.
 Persistence and Distribution of Toxocara Larvae in Tissues of Children and Mice. M. H. D. Smith and P. C. Beaver.—p. 491.
 *Hemolytic Streptococcal Infection in Childhood. L. A. Rantz, M. Maroney and J. M. Di Caprio.—p. 498.
 Lymphoid Hyperplasia of Appendix: Clinical Study. A. A. Nathans, H. Merenstein and S. S. Brown.—p. 516.
 Congenital Malformations and Birth Injuries in New York City. H. M. Wallace, L. Baumgartner and H. Rich.—p. 525.
 Pseudocholedochal Cyst. A. G. Smith and S. F. Seeley.—p. 536.
 Hormone Patterns in Patients with Congenital Adrenal Hyperplasia. V. C. Kelley, R. S. Ely and R. B. Raile.—p. 541.
 Abnormal Electrolyte Composition of Sweat in Cystic Fibrosis of Pancreas: Clinical Significance and Relationship to Disease. P. A. di Sant'Agnes, R. C. Darling, G. A. Perera and E. Shea.—p. 549.
 Clot Density Method of Fibrinogen Determination in Some Pediatric Conditions. A. Kanof, S. Losner and B. W. Volk.—p. 564.
 Mucolytic Enzyme Systems: XX. Comparison of Mucoprotein and Hyaluronidase Inhibitor Concentrations in Maternal and Infant Serum. R. A. Good, V. C. Kelley, T. A. Good and D. Glick.—p. 575.

Hemolytic Streptococcus Infection in Childhood.—A four year investigation of hemolytic Streptococcus infection in childhood was undertaken in infants and children attending the pediatric outpatient clinics of the Stanford University Hospitals in San Francisco. Suitable cases of hemolytic Streptococcus infection were discovered in 43 children from 4 to 8 years of age by the application of clinical and bacteriological methods to those who presented symptoms of respiratory infection or by the serial study of 92 infants followed from birth for the first four years of life. In the latter group, infection by the hemolytic Streptococcus was a frequent event, but the disease was usually mild or inapparent. In its severer form it was characterized by the lack of an acute onset, by low grade or absent fever, by rhinorrhea, by a protracted course that was not self-limited, and by the occurrence of frequent suppurative complications. Accurate etiological diagnosis in these patients required bacteriological study of the

nasopharyngeal flora and of the purulent discharges. The administration of penicillin in standard courses, consisting of daily injections of 300,000 units of penicillin in aqueous suspension for five consecutive days or of three doses at 48 hour intervals of the same amount of the drug suspended in oil and 2% aluminum monostearate abruptly terminated the disease process in these cases with prompt and dramatic clinical improvement. After 4 years of age the disease pattern changed so that progressively more of the infections were associated with an acute febrile onset, sore throat, exudative tonsillitis and pharyngitis, and occasionally with a skin rash. Rheumatic fever and lesser manifestations of the rheumatic state occurred after streptococcal infection in children aged over 4 years but were never observed in those less than 4 years of age. Evidence is presented that supports but does not establish the validity of the hypothesis that the changing patterns of clinical response to hemolytic streptococci are the result of repeated infection by these organisms with an alteration in tissue reactivity presumably on an immunologic basis.

Pennsylvania Medical Journal, Harrisburg

56:945-1024 (Nov.) 1953

- Cardiac Arrest and Resuscitation. C. S. Beck.—p. 969.
 Trauma as Factor in Production of Alopecia Universalis: Preliminary Report. C. L. Schmitt.—p. 975.
 Adenoid Problem Demands Orderly Procedure. H. D. Rentschler.—p. 977.

56:1025-1168 (Dec.) 1953

- President-Elect's Address. J. L. Whitehill.—p. 1043.
 Differential Diagnosis Between Solid and Serous Detachment of Retina. A. E. Town.—p. 1046.
 Business Management of Medical Practice. H. C. Black.—p. 1049.

Postgraduate Medicine, Minneapolis

14:369-464 (Nov.) 1953

- Management of Postmenopausal Woman. J. C. Weed.—p. 370.
 Prevention and Management of Acute Cholecystitis. P. T. DeCamp.—p. 374.
 "Frozen Shoulder." T. Duncan.—p. 377.
 *Gallstones: Menace in Cholelithiasis. A. Ochsner.—p. 381.
 Carcinoma of Prostate. W. E. Kittredge.—p. 386.
 Gout—Its Diagnosis and Treatment. T. E. Weiss and W. E. Weems.—p. 392.
 Cystic Disease of Kidneys. R. Birchall and M. Harvard.—p. 398.
 Venesection in Treatment of Congestive Heart Failure, Erythremia, Aortic Aneurysm and Hemochromatosis. J. K. Bradford, W. Atrowsmith, W. D. Davis Jr. and T. Findley.—p. 403.

Gallstones in Cholelithiasis.—According to Ochsner gallstones represent a real hazard in acute cholelithiasis because of the possibility of the development of dangerous complications such as acute cholecystitis, obstruction of the common duct, choledochitis, intestinal obstruction due to gallstones, acute and chronic pancreatitis, and carcinoma of the gallbladder. This last condition is undoubtedly the most dreaded of all gallstone complications, because once carcinoma has progressed so that it can be suspected or diagnosed clinically, nothing can be done to cure it. Carcinoma of the gallbladder probably never occurs without the presence of gallstones, and, although the risk of developing carcinoma in the presence of gallstones may not be particularly great, possibly between 2 and 5%, the danger of cholecystectomy for uncomplicated cholecystitis and cholelithiasis is much less than this. Only approximately 30% of biliary calculi have sufficient calcium in them to cast a shadow in the plain roentgenogram. In those cases in which there is sufficient function in the gallbladder so that it can be visualized, nonopaque stones are visible as negative shadows. Frequently, however, patients with biliary calculi have severe enough cholelithiasis so that the function of the gallbladder is insufficient to permit visualization. In these instances, the diagnosis of cholelithiasis must be made from the symptoms alone. It is justified in any patient who has recurrent attacks of biliary colic associated with a nonfunctioning gallbladder. If there is any possibility of the presence of calculi, the gallbladder and its calculi should be removed unless there is some definite contraindication, because only in this way can the development of complications, which are responsible for most of the deaths in patients with cholelithiasis, be minimized.

Proc. Staff Meet., Mayo Clinic, Rochester, Minn.

28:641-672 (Nov. 18) 1953. Partial Index

- *Serious Untoward Gastrointestinal Manifestations Possibly Related to Administration of Cortisone and Corticotropin. W. G. Sauer, W. H. Dearing and E. E. Wollaege. —p. 641.
- Rheumatic Complaints During Chronic Hypercortisonism and Syndromes During Withdrawal of Cortisone in Rheumatic Patients. C. H. Slocumb. —p. 655.
- Histopathologic Changes in Adrenal and Anterior Pituitary in Patients Treated with Cortisone: Preliminary Impressions. W. A. Bennett. —p. 658.
- Clinical Aspects of Suppression of Adrenal Cortical Function after Use of Cortisone. R. M. Salassa, F. R. Keating Jr. and R. G. Sprague. —p. 662.

Untoward Gastrointestinal Manifestations Related to Cortisone and Corticotropin.—Sauer and associates present the cases of 10 patients in whom serious untoward gastrointestinal manifestations appeared during or after administration of cortisone or corticotropin. Death occurred in one patient who had chronic ulcerative colitis and in whom perforation of the cecum and peritonitis developed. Perforation of the bowel and peritonitis occurred in two of four patients who had regional enteritis; an enterocutaneous fistula was present in one of these as a result of the perforation. Perforation of an intra-abdominal abscess occurred in a third patient who had this disease. The fourth patient, who had extensive regional enteritis, also had ulcerative esophagitis that either developed during or was aggravated by administration of corticotropin. Complications of peptic ulcer occurred in two patients who had extensive hypercortisonism. One of these patients had massive hemorrhage and ultimately died as the result of adrenal insufficiency after surgical removal of the ulcer. The second patient experienced reactivation of an ulcer and massive hemorrhage; subsequent resection was required. A gastric ulcer that was intractable to medical management appeared in a third patient who had hypercortisonism. Ulcerative rectal lesions developed in three patients; two of them had hypercortisonism and one of these also had a large intractable gastric ulcer. The third patient in this group had proctoscopic findings and clinical symptoms compatible with chronic ulcerative colitis that developed while he was receiving cortisone for treatment of rheumatoid arthritis. Although it is possible that gastrointestinal complications occur in patients receiving cortisone or corticotropin entirely by chance, the evidence from this study and from reports in the literature strongly suggests that administration of these hormones may be a causative factor.

Psychiatric Quarterly, Utica, N. Y.

27:543-748 (Oct.) 1953. Partial Index

- Psychic Determinism and Responsibility. L. G. Lowrey. —p. 543.
- Concept of the Unconscious. L. Eidelberg. —p. 563.
- Psychotherapeutic Approach to Schizophrenics Through Insulin-Coma Treatment. D. Annau. —p. 608.
- Observations on 36 Patients with General Paresis Treated with Penicillin-Malaria and Penicillin Alone. W. M. Cohn. —p. 637.

Review of Gastroenterology, New York

20:777-856 (Nov.) 1953

- Internal Hernia. H. Nathan and J. E. Moseley. —p. 787.
- Comments on Diseases of Small Intestine. D. Adlersberg. —p. 805.
- Physiopathological Changes in Upper Gastrointestinal Bleeding. R. C. Drye and H. A. Rafsky. —p. 814.
- Effects of Pneumoperitoneum upon Digestive Tract. N. B. Jaffe. —p. 824.
- An Evaluation of Prantal® in Ulcer Management: Follow-Up of Preliminary Report. T. S. Heineken. —p. 829.
- *Duodenal Ulcers (Multiple) in Nine Year Old Boy: Complicated by Pyloric Obstruction. H. M. Robinson. —p. 840.

Multiple Duodenal Ulcers in a 9-Year-Old Boy.—The boy whose case is presented was first seen by Robinson in January, 1948, when the history revealed that for the past two years he had had epigastric pains. Examination revealed a rather undernourished youngster. There was tenderness in the epigastrium. Radiographic examination revealed that the duodenal bulb failed to fill properly and to empty completely, leaving two residual pockets of barium in the region of the duodenal bulb. These were interpreted as ulcer niches. The child responded to an ulcer regimen, but in 1949 he returned

with the complaint of epigastric pain and he was again placed on rigid medical care. In 1950, another gastrointestinal series revealed a niche in the duodenal bulb with considerable gastric retention. The pyloric obstruction diminished on a medical regimen as the acute stage of the ulcer subsided. In 1951, the child returned complaining of nausea, vomiting, and loss of weight. Operation was performed in 1952, at which time a subtotal gastrectomy was done. The duodenal ulcer had penetrated into the bed of the pancreas. The ulcer was removed with pancreatic tissue. A pancreatic fistula complicated his convalescence. Subsequent resection of the fistulous tract was followed by uneventful recovery. Robinson feels that, if more children were studied radiographically, a higher incidence of peptic ulcer would be found in children.

Surgery, Gynecology and Obstetrics, Chicago

97:657-782 (Dec.) 1953

- *Freeze-Dried Arterial Homografts: Clinical Application. R. B. Brown, C. A. Hufnagel, J. W. Pate and W. R. Strong. —p. 657.
- *Diagnostic Value of Tissue Culture Studies of Pleural Effusions: Five Year Follow-Up of Cases. M. E. Sano. —p. 665.
- Study of Supportive Structures of Uterus by Levator Myography. B. Berglas and I. C. Rubin. —p. 677.
- Diagnostic and Therapeutic Considerations of Intussusception. H. R. Kahle and C. T. Thompson. —p. 673.
- Uterine Fibromyomas. R. W. Irwin. —p. 702.
- Evaluation of Evans Blue Dye T-1824 Method for Studying Circulating Blood Volume. J. A. Whiting and R. Hotz. —p. 709.
- Congenital Stenosis and Atresia of Small Intestine. T. C. Moore and G. E. Stokes. —p. 719.
- Operative Technique for Construction of Venous Valves. B. Eiseman and W. Malette. —p. 731.
- War Wounds of Thoracic Respiratory Apparatus. C. E. Willner. —p. 735.
- Hepatic Coma Following Ischemia of Liver. A. M. Rappaport, M. H. Macdonald and Z. J. Borowy. —p. 748.
- Experimental Hepatic Coma. B. Giges, H. L. Dein, V. M. Sborov and others. —p. 763.
- Formation of Popliteal Vein. A. F. Williams. —p. 769.
- Surgical Management of Profuse Hemorrhage from Uterine Carcinoma. A. M. Salzberg, W. A. Fuller and R. H. Hoge. —p. 773.

Freeze-Dried Arterial Homografts.—The clinical use of arterial homografts has been made practical by the development of storage methods. The types of preservation that have been effective clinically are those that use a quick freezing technique with storage at -80°C , as developed by Hufnagel, and those that utilize a tissue culture-like medium with storage at 1 to 3°C as advocated by Gross. Both methods have several disadvantages. The present report is concerned with the clinical use of arterial homografts preserved by freeze-drying. While processing is somewhat more involved, storage does not require the supervision of specialized personnel; it is not dependent on controlled conditions of temperature, storage medium, and sterility; it is independent of power failure; and the grafts are stored and handled just as a bottle of dry blood plasma and may be shipped by commercial carrier. These grafts have a shelf life in excess of two years. The arterial homografts are obtained at sterile autopsies within 24 hours of death, the body having been refrigerated in the interim. The vessel segments are placed in glass tubes and frozen by immersion in a mixture of absolute alcohol and dry ice at -78°C . After five minutes of freezing in this solution the grafts are either placed directly in a freeze-drying machine or in storage at dry ice temperature to await freeze-drying. For drying, an extensively modified commercial freeze-drying machine is used, and the grafts are placed in a vacuum of 50 to 100 microns of mercury. The temperature is maintained at less than -35°C for several hours. The arterial segments are thus dried by sublimation, the entire process taking about 72 hours. During the last 24 hours, the temperature is raised to 30°C . When drying is completed the residual moisture in the graft has been reduced to less than 1% of the normal unbound water content. The grafts are sealed in bottles under an ionizable vacuum and stored at room temperature. It has been demonstrated in experimental animals that freeze-dried arterial grafts may be used with excellent results. The authors present detailed reports of seven patients in whom 12 freeze-dried vessel segments were used. The patients have been followed for from one to nine months. In all instances patency of the graft apparently has been maintained during this relatively short period of observation.

Diagnostic Value of Tissue Culture Studies of Pleural Effusions.—Sano says that in a previous report it was shown that cells from human body fluids have different growth patterns in tissue culture that may be of diagnostic value. The present paper reports detailed studies of 56 specimens from 50 cases representing varied diseases. These have been grouped more or less arbitrarily into carcinomas, granulomas, lymphomas, and inflammatory conditions. Cellular growth patterns were analyzed, correlated with the pathological states which produced the effusions, and compared with the cell block and Papanicolaou smear studies. The fluids were collected under sterile conditions. If sufficient material was available, 20 cc. of the fluid was used for tissue culture studies and the remainder for cell block study. From one to four hours after removal, the cells were inoculated into two types of medium; one consisting of autogenous plasma (fasting), Tyrode's solutions, and mouse embryo extract, and the other of chicken plasma, Tyrode's solution, and embryo extract. The apparatus was the double coverslip cell of Sano-Smith and the roller tubes of Gey and Lewis. Cinephotomicrography with an inverted microscope and constant temperature chamber permitted the study of the cultures by time lapse moving pictures without interfering with cellular growth. The types of cells, their number, and their behavior were recorded daily for from 3 to 10 days. In situ staining by a procedure applicable to both routine sections and Papanicolaou smears was used to facilitate cellular comparison. With regard to the use of autogenous plasma the author says that in the study of some 400 human tissues it became increasingly apparent that in most instances, though not in all, the cell type and pattern of the original tissue were more closely reproduced in those cultures in which autogenous plasma had been used. The author applies the term kinetic pathology to the culture in vitro of pathologic tissues. In the concluding summary she stresses that the presence of living, multiplying tumor cells has been demonstrated in tissue cultures of pleural effusions in which no tumor cells had been found by any other method. Tissue culture of human effusion cells reflect in most instances the pathologic process active in their donors. Kinetic pathology has been shown to be a valuable diagnostic tool and an adjunct to cell block and smear studies, but not a substitute for these.

Surgery, St. Louis

34:803-970 (Nov.) 1953

- Use of Cellulose Sponges in Surgery: Preliminary Report. J. R. Paine and R. W. Egan.—p. 803.
- Inflammatory Carcinoma of Breast in Male Patient. N. Treves.—p. 810.
- Hemorrhage from Stress Ulcer Treated by Resection. R. G. Salasin and W. F. Bowers.—p. 821.
- *Gastrointestinal Ulcerations Complicating Burns: Report of 5 Cases and Review of 17 Cases Reported from 1942 to 1952. A. E. Weigel, C. P. Artz, E. Reiss and others.—p. 826.
- Benadryl Hydrochloride Given Intravenously to Control Postoperative Nausea and Vomiting. W. R. Warrington, T. J. Pasquesi, R. J. Kulasavage and E. L. McCawley.—p. 837.
- *Duplication of the Entire Colon, Bladder, and Urethra. M. M. Ravitch and W. W. Scott.—p. 843.
- Röntgen Rays and Wound Healing: II. Fractionated Irradiation: An Experimental Study. J. J. Nickson, W. Lawrence Jr., I. Rachwalsky and E. Tytce.—p. 859.
- Vitamin B₁ Deficiency Mimicking Thrombophlebitis in Postoperative and Postpartum Period. B. Eisman.—p. 863.
- Effect of Sympathectomy on Experimental Frostbite in Dog. J. H. Kay, T. S. Harrison and G. D. Zuidema.—p. 867.
- Effect of N-Allylnormorphine on Choledochal Sphincter Action. H. Schapiro and J. M. Beal.—p. 870.
- Influence of Inattention on Utilization of Low Caloric-Amino Acid Mixture Given Intravenously. M. D. Pareira, E. J. Conrad and R. Elman.—p. 874.
- Control of Pain Following Hemorrhoidectomy. W. H. Gerwig Jr., S. Alpert, C. S. Coakley and B. Blades.—p. 880.
- Leiomyosarcoma of Small Intestine. C. B. Ripstein and G. W. Flint.—p. 882.
- Use of Roux-en-Y Ileal Ureteral Anastomosis for Reimplantation of Bilateral Cutaneous Ureterostomies to an Ileal Pouch. F. J. Rack, F. Simeone and H. Trattner.—p. 886.

Gastrointestinal Ulcerations Complicating Burns.—According to Weigel and his associates, 600 patients with burns have been hospitalized at the Burn Study Section of the Surgical Research Unit, Brooke Army Medical Center, since 1949. Of the 20 patients who died, 5 had proved gastrointestinal ulcerations. In

the first of the five patients, rectal bleeding, occurring on the 10th day after the burn was the first sign of gastrointestinal ulceration. Autopsy revealed four acute ulcers of the intestinal tract, the largest of which was in the posterior aspect of the duodenum and had eroded into the pancreaticoduodenal artery. In retrospect, it appears that surgical intervention to control the hemorrhage should have been carried out when the second hemorrhage occurred. In the second patient, bleeding from the gastrointestinal tract occurred 48 days after the burn. Seven days later the ulcerative lesions in the stomach perforated, and the patient died because of overwhelming peritonitis. In the third patient, the exact cause of death could not be determined, but the large, acute ulcer on the posterior aspect of the duodenum was directly over the pancreaticoduodenal artery. Although this ulcer did not produce any signs or symptoms, it could have caused hemorrhage if the patient had lived longer. The fourth patient had a very extensive burn complicated by acute bacterial endocarditis. Although he died on the sixth day after the burn, acute ulceration of the stomach and duodenum were noted at autopsy. The fifth patient died on the fourth day after being burned. Autopsy findings did not explain the cause of death. Several small ulcerations were seen in the duodenum and ileum, but these lesions did not cause any symptoms. The authors also present pertinent clinical and pathological observations derived from a review of 17 cases of gastrointestinal ulcerations following burns reported in the literature since 1942. Surveying all 22 cases, the authors say that the predominant manifestation of the ulceration was hemorrhage in 10 and perforation in 7; in the 5 other patients, there were no symptoms of gastrointestinal ulceration, the ulcerative lesions being incidental findings at autopsy. Most patients who had ulcerative lesions of the gastrointestinal tract after burns did not show any signs or symptoms of the lesion until hemorrhage or perforation occurred. An emergency operation may be indicated when a massive gastrointestinal hemorrhage occurs after burns.

Duplication of Colon, Bladder, and Urethra.—The boy whose case is presented was referred to the Johns Hopkins Hospital because of a deformity of the penis and because of life-long abdominal distention. From the time the child was 3 or 4 weeks old until the summer of 1948, when he was little more than 4 years old, he never had a bowel movement except with an enema, and he was almost constantly distended. In a series of operations, the first of which was performed in November, 1948, in the belief that the boy had Hirschsprung's disease, (congenital megacolon), complete doubling of the colon, bladder, and urethra was discovered. The entire colonic duplication was removed, the vesical septum was excised, and one urethra was divided. A hydroureter and atrophic kidney were removed. The patient is left with one colon, one kidney, one bladder, and one functioning urethra. He appears entirely well. This type of anomaly, probably representing an incomplete caudal twinning, is to be differentiated from the cystic structures now generally known as duplications and formerly called enteric cysts or enterocystomas. Eighteen other similar cases of true duplication of the colon are reviewed. The mortality of the condition is high, even in the absence of other and graver defects. The duplication generally ends blindly or connects with a small and inadequate fistula. Intestinal obstruction is the chief symptom and requires early relief either by excision of the duplication or by anastomosis of its lower end into the normal rectum or sigmoid. Associated anomalies of the genitourinary tract are extremely common and should be searched for, since operative correction may be required.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

61:623-678 (Nov.) 1953

- Sites of Metastasis in Carcinoma of Cervix. R. R. de Alvarez.—p. 623.
- Contracted Midpelvis. S. Hanson.—p. 628.
- Factors in Decreasing Morbidity in Prostatectomy Patients. C. D. Goodhope.—p. 630.
- Efocaine: Complications Following Its Use. D. C. Moore.—p. 635.
- Achalasia of Esophagus: Recent Experiences in Its Treatment by Extramucous Esophagocardiotomy. O. F. Grimes, H. B. Stephens and H. G. Bell.—p. 639.
- Hyperparathyroidism. L. D. Heaton and R. Cohn.—p. 651.
- Vas Deferens Anastomosis: Review of Literature and Report of Three Consecutive Successful Cases. R. H. Humphreys.—p. 658.
- New Uterine Retractor. J. Schwartz.—p. 661.

FOREIGN

Acta Paediatrica, Stockholm

42:179-286 (May) 1953. Partial Index

- *Guillain-Barré Syndrome Associated with Poliomyelitis in Newborn. B. Hagberg and G. Herlitz.—p. 179.
- Herpes Simplex: Study of Complement-Fixing Antibodies at Different Ages. A. Holzel, G. V. Feldman, J. O'H. Tobin and J. Harper.—p. 206.
- Diarrhea in Infants and Its Relation to Certain Type of Colibacteria. M. R. H. Stoppelman and A. B. J. van der Plaats.—p. 215.
- Celiac Disease: IV. An Investigation Into Injurious Constituents of Wheat in Connection with Their Action on Patients with Celiac Disease. J. H. van de Kamer, H. A. Weijers and W. K. Dicke.—p. 223.
- Problem of Edema in Infantile Malnutrition. E. Kerpel-Fronius and F. Varga.—p. 256.
- Anemia Hypoplastica Congenita (Anemia Typus Josephs-Diamond-Blackfan): Report of Case Treated with Adrenocorticotropin with Effect. A. Kass and A. Sundal.—p. 265.
- Case of Reticulo-Endotheliosis with Unusual Course. S. Törnqvist.—p. 274.
- Use of Hyaluronidase in Scleroderma. U. Claesson and B. Lindquist.—p. 278.

Guillain-Barré Syndrome and Poliomyelitis in Newborn.—Two infants, 10 and 8 days old, respectively, born during separate outbreaks of poliomyelitis, presented the Guillain-Barré syndrome apparently associated with poliomyelitis. Guillain-Barré syndrome, hitherto unreported in the newborn, is believed to be caused by a late neurogenic reaction to a variety of different allergens. It has been observed after infections, vaccinations, serum injections, and intoxications. A presumptive diagnosis of poliomyelitis is common in cases of Guillain-Barré syndrome, and the differential diagnosis may be difficult, especially when both conditions are prevalent. Infants with poliomyelitis who are less than 2 weeks old almost always present general flaccidity and tetraplegia, and albuminocytologic dissociation is commonly found in the cerebrospinal fluid. The mother of the first of these patients had typical poliomyelitis, which began on the day of delivery and progressed until both legs, the entire right arm, the abdominal muscles, and the back became paralyzed. Partial recovery followed, but six months later she still had severe paralysis of the dorsal muscles with scoliosis. The child appeared healthy at birth but 10 days later was limp and apathetic. He had no fever, but the paralysis became progressively more extensive until, in addition to the extremities, the abdominal, dorsal, and cervical muscles were involved. Recovery thereafter was fairly rapid, and follow-up when the patient was 2 years old showed no sequelae. It is reasonable to assume that the child's disease was associated with that of his mother in this case, but the manner in which the poliomyelitis virus gave rise to the polyradicular reaction is open to question. Did the boy actually have atypical poliomyelitis, or was his illness merely an unspecific neuroallergic response to the maternal infection? The second child presented an almost identical clinical picture in the beginning, but his recovery was only partial and paralyzes characteristic of poliomyelitis were still present at the age of 8 months. The final diagnosis in this case, in which there was no history of contact with poliomyelitis although an outbreak of the disease was in progress, was Guillain-Barré syndrome following poliomyelitis during the first week of life.

Annales de Médecine, Paris

54:457-548 (No. 6) 1954

- *Histopathological Observations in Two Closely Related Forms of Hepatitis: Infectious Hepatitis and Infectious Mononucleosis. F. Bénazet, R. Sohler and R. Fontanges.—p. 457.
- On a Myelomatous Kidney. R. Poinso, H. Payan and S. Allais.—p. 483.
- Investigations of Blood Sedimentation. Role of Anticoagulants and Corpuscular Volume. S. Lewi.—p. 498.
- Manifestations of Pyruvism in Nervous System. N. Dobrovolskaia-Zavadskaia.—p. 525.

Infectious Hepatitis and Infectious Mononucleosis.—Puncture biopsy of the liver facilitates the differential diagnosis of infectious hepatitis and infectious mononucleosis in their early stages, before regression of the parenchymal lesions characteristic of infectious hepatitis. Both conditions produce similar

mesenchymal changes in the liver, but parenchymal lesions, which are always found in infectious hepatitis, may be slight or even nonexistent in infectious mononucleosis. Histological study of liver specimens obtained by puncture biopsy from 37 patients (14 with epidemic hepatitis, 14 with sporadic hepatitis, most of whom became ill during a period of epidemic, and 9 with infectious mononucleosis) showed both the similarities and the dissimilarities existing between these two viral diseases. Inflammatory histiolympocytic infiltration of the portal spaces and the capillaries, plainly discernible in both conditions, was much more pronounced in infectious mononucleosis, frequently resulting in the formation of inflammatory nodules scattered throughout the lobule. The characteristic parenchymal lesions found in infectious hepatitis consist of necrotic foci, often localized in the center of the lobule, which usually regress completely within 15 or 20 days after the onset of jaundice. Minor differences may still be seen in specimens obtained during the later stages of these diseases, but their diagnostic value is chiefly presumptive, whereas the histological findings of the first 10 or 15 days establish the diagnosis with virtual certainty. The information derived from puncture biopsy is especially useful in atypical forms of infectious hepatitis and infectious mononucleosis in which clinical signs and laboratory tests may be inconclusive.

Archiv für Geschwulstforschung, Leipzig

5:301-424 (No. 4) 1953. Partial Index

- Late Relapses and Late Metastases After Genital Carcinomas in Women. H. Schmölling.—p. 301.
- *100 Years' of Statistics on Pulmonary Cancer of the Pathologic Institute of Dresden-Friedrichstadt. H. Grosse.—p. 318.
- Statistics on Carcinoma: Autopsies from 1920 to 1951. W. Werner.—p. 334.
- Carcinoma of Uterine Cervix and Pregnancy During the Decade 1936 to 1945. H. Schrimpf.—p. 351.

Cancer of Lung: 100 Years' Statistics.—Grosse states that the autopsy records of the Pathologic Institute of the city hospital in Dresden-Friedrichstadt made it possible to compute statistics on pulmonary cancer over an entire century, that is from 1852 to 1951 inclusive. During this century a total of 78,979 autopsies were performed on adults over 20 years of age, 43,313 on men and 35,666 on women. A total of 10,746 cancers were found, and 1,206 were pulmonary cancers (1,030 in men and 176 in women). The 43,313 men had 5,461 cancers of which 1,030 were pulmonary; and the 35,666 women had 5,303 cancers of which 176 were pulmonary. Since pulmonary cancer is much more frequent in men than in women, the percentage should be computed separately for both sexes, and the over-all percentage of pulmonary cancers should be computed as the arithmetical mean of the percentages for men and for women. The incidence of cancer in general has increased from 1852 to 1951, largely as the result of the progressive increase in the older age groups. Among men the increase in cancer in the course of the century has been from 4.7% to 15.5%, in women from 12.6% to 16.5%. The pulmonary cancers have increased in men from 0.3 to 5.66% of all autopsies or from 6.6% to 35.5% of the total number of cancers in the autopsy material. Since the incidence of cancer in men has increased in the course of the century 3.3 times and the incidence of pulmonary cancer 18 times, the increase in pulmonary cancer was real and not merely due to the increase in the aged groups. Among women the statistics do not indicate a definite increase in pulmonary cancers. The sex ratio of pulmonary cancer shifted in the course of the century from 1:1 to 6.6:1. During the last decade pulmonary cancer has become more frequent than gastric cancer in Dresden. Of 11,591 cases of pulmonary cancer reported in the literature those on the right side predominated over those on the left side in a ratio of 127:100. The pulmonary cancers diagnosed during life have increased since 1930 from 35.5% to 72.8%. Pulmonary cancer is found in all occupations as was indicated in 600 case records, in which the occupation was stated; however, there seemed to be a slightly higher incidence in occupations involving exposure to dusts.

Archivio Italiano di Derm., Sif. e Vener., Bologna

25:397-488 (No. 6) 1952-1953. Partial Index

- *Clinical and Histological Changes of Skin Epithelioma After Local Injections of Estrogens. A. Agostini.—p. 397.
Scleroderma and Plasma Protein Alteration. A. Longhi.—p. 435.
Coccarboxylase in Treatment of Herpes Zoster. A. Bottoli.—p. 453.

Local Injection of Estrogens in Skin Epitheliomas.—Water-soluble estrogens (stilbene) injected locally in 21 instances of skin epithelioma produced a clinical improvement, inhibited the development of the neoplasm, and caused it to regress to an earlier stage of its proliferative course. Generally from 12 to 15 injections were given in each case every other day or every two days. A biopsy specimen taken from the center of the ulceration before therapy was compared with another specimen of the same volume and form taken parallel and contiguous to the first after the treatment was discontinued. The connective stroma was improved and the estrogens influenced indirectly the process of reepithelization. The improvement was limited to the epithelium-connective tissue relationships and did not affect the neoplasm itself. There was a marked qualitative modification in the connective tissue but not in the cells of the epithelioma; there were changes in the histopathological substratum with a marked quantitative decrease of cells. The epithelioma never disappeared entirely since the estrogens inhibited the growth of the tumor only. If this inhibiting property will be confirmed by other workers, it will prove that the action of the estrogens does not attack the malignancy in its essence but only influences indirectly some circumscribed sector of the pathogenetic mechanism of the neoplastic development. The main action of the estrogen in these cases consisted in an indirect stimulation of the connective tissue or better of the collagen to hyperplasia. It also influenced the interfibrillary substances with complex biochemical mechanisms. Two factors are noteworthy: the therapeutic efficacy of estrogens on neoplasms other than the sexual ones and the local administration of them. They seem to indicate that (1) the activity of the sexual hormones against cancer is to be attributed to some pharmacological properties independent of their estrogenic property and (2) that the estrogens act on the tissues directly and not through complex mechanisms in which other humoral factors intervene.

Archivos Médicos Panameños, Panama

2:133-202 (July, Aug., and Sept.) 1953. Partial Index

- Diphtheric Laryngitis: Importance of Endoscopic Aspiration in Treatment. A. Roy.—p. 133.
*Kerosene Poisoning in Children. P. V. Núñez.—p. 141.
Adenoma of Liver. Case. T. G. Guardia.—p. 153.

Kerosene Poisoning in Children.—People of moderate means in Panama and in certain countries of Central America use kerosene freely as a fuel in kitchen stoves and in lamps. Kerosene poisoning in children is more frequent than believed. It is caused by ingestion of kerosene from containers that are left within the reach of children by careless adults. In the emergency dispensary of the Hospital Santo Tomas of Panama, 382 cases of kerosene poisoning in children were observed from 1941 to 1953. The majority of the victims were between the ages of 1 and 2 years. The quantity of kerosene that the child ingested was not definitely ascertained. The children had medical attention at the dispensary between a few and several hours after the accident. The cases were classified according to the Steiner's classification as follows. The first type includes cases of acute toxicity with depression of the central nervous system, lethargy and sometimes coma, pulmonary symptoms indicating either a minimal or no pulmonary lesion, and quick recovery of the patients within 24 or 48 hours after the accident. The second type includes cases of acute pneumonia, hyperpyrexia and symptoms for several days. The third type includes patients with acute pneumonia and degeneration of the myocardium, the kidney, and the gastrointestinal tract. In the group of patients observed by the author, 242 belonged to the first type, 129 to the second, and 11 to the third. Roentgen examinations were carried out in 123 patients. The bronchopulmonary lesions observed were bronchitis, bilateral pneumonia, pneumonia in the right cardiophrenic angle, basal pneumonia at the right or the left base,

pneumonia at the right upper lobe or at the left middle third of the lung, pleurisy on the left side, and basal pleurisy on the right. The treatment consisted of gastric lavage with a 4% sodium bicarbonate solution, drugs stimulating the nervous system, oxygen, antibiotics, and chemical compounds. The time of hospitalization varied between a minimum of 2 days and a maximum of 26 days for the three different types. Seven patients died. A necropsy was performed in four cases. The lesions found were extensive bilateral pneumonia in one case, toxic punctiform hemorrhagic gastritis in another case, and pneumonia with acute gastritis in two cases. The author urges an educational campaign through the press and the radio to show the people the danger of kerosene poisoning in children and the need of care in preventing the accident.

Australian and New Zealand J. Surgery, Sydney

23:81-160 (Nov.) 1953. Partial Index

- Adrenocortical Tumours. K. B. Fraser.—p. 81.
Blood Supply of Thyroid Gland: I. Normal Gland. N. Johnson.—p. 95.
Adenomatoid Tumour of Epididymis. D. B. Duffy.—p. 107.
Treatment of Internal Haemorrhoids. E. S. R. Hughes.—p. 116.
Case of Cerebral Abscess Following Minor Head Injury. K. G. Jamieson.—p. 127.
Some Aspects of Surgical Treatment of Open Hand Injuries. S. Barclay.—p. 131.
Scope and Indications for Abdomino-Vaginal Resection of Rectum. W. L. Keller.—p. 139.
Fibrositis Ossificans Progressiva. R. Webb.—p. 141.
*Carcinoma of Extrahepatic Bile Ducts. W. B. Fleming.—p. 148.
Inadvertent Gastro-Ileostomy in Presence of Left-Sided Caecum. E. M. Fisher.—p. 156.

Carcinoma of Extrahepatic Bile Ducts.—Fleming believes that it is not generally realized that carcinoma of the extrahepatic bile ducts occurs oftener than carcinoma of the gallbladder. He collected from the records of four hospitals in Melbourne, during the 20 year period from 1933 to 1952, inclusive, 130 patients with carcinoma of the extrahepatic bile ducts. Histological proof was available in 102 cases, and these are the basis of this study. There were three distinct patterns of growth: 1. Eighty-six cases showed a diffuse infiltrating growth, involving long sections of duct, in places converting it into a rigid tube resembling a "leather-bottle stomach," but usually with obliteration of the lumen and formation of a bulky, stony, hard mass. 2. In seven cases, a stricture that could be compared with a "ring" carcinoma of the colon was found. 3. In five cases, a fleshy, fungating growth projected into the lumen of the duct with little involvement of the wall or extension beyond it. The macroscopic appearance was not described in four cases. The predominant histological patterns were columnar cell adenocarcinoma, papillary adenocarcinoma, small duct type lined with cuboidal epithelium, spheroidal cell carcinoma, columnar cell carcinoma, and anaplastic carcinoma. There were 51 instances of lymph node metastases and/or distant metastases in other organs. Lymph node metastases involved mostly those around the head of the pancreas, those in the porta hepatis, the cystic gland, and the upper preaortic group. Spread to the liver occurred in 25, to the lung in 10, and to the adrenal glands in 2 cases. The gallbladder was not enlarged in any case of hepatic duct carcinoma and in only 9 of 30 cases of tumor in the triple junction region, but there was an enlarged gallbladder in 28 of 42 carcinomas of the common bile duct and in 10 of the 12 ampullary carcinomas. Gallstones were or had been present in nearly half of the cases, in one-quarter of the male patients and in three-quarters of the female patients. Textbooks state that the onset of this type of carcinoma is that of a progressive, painless jaundice, often preceded by malaise and accompanied by loss of weight. Such a history was elicited from only 38 of the 102 patients. Biliary colic occurred in 18 and pain under the right costal margin or in the epigastrium in the remainder. This pain suggested calculous obstruction of the common bile duct so that the true nature of the lesion was rarely suspected prior to laparotomy. The age of patients with bile duct carcinoma is somewhat higher than that of patients with carcinoma of the gallbladder. The surgical treatment of bile duct tumors is difficult, because the parts are small and the tumors occur in regions where even slight infiltration will involve important structures and make removal difficult. Nearly half of the patients die within the first two weeks after operation.

British Medical Journal, London

2:1283-1334 (Dec. 12) 1953

- Vital Statistics and the Doctor. R. Brain.—p. 1283.
 Sampling in Medical Research. C. White.—p. 1284.
 Adrenal Pseudohermaphroditism. L. R. Broster, J. Patterson and B. Camber.—p. 1288.
 Porphyria. G. Dean.—p. 1291.
 Intra-Arterial Transfusion. J. A. G. Horton, J. S. Inkster, A. Mackenzie and E. A. Pask.—p. 1294.
 *Laboratory Aspects of Combined Antibiotic Treatment. S. D. Elek, G. R. F. Hilson and P. Jewell.—p. 1298.
 Clinical Trial of Methimazole in Treatment of Thyrotoxicosis. L. A. G. Davidson.—p. 1300.
 Treatment of Irreducible Intussusception. J. D. T. Jones.—p. 1304.
 The Accident-Prone in General Practice. R. M. McGregor.—p. 1306.
 Effect of Leucotomy in Initiating Normal Menstrual Cycle at Age 36. J. T. Hutchinson.—p. 1309.

Laboratory Aspects of Combined Antibiotic Treatment.—The investigations described by Elek and associates are concerned with the lethal action of combinations of antibiotics. The method used consists of a transfer of organisms from the surface of the original medium containing antibiotics to the surface of a fresh medium free from drugs. The transfer is made in much the same way that a rubber stamp transfers ink from a pad to a piece of paper. The stamp consists of a cylindrical block of wood with velvet glued to one surface. Disks (6 mm. in diameter) were cut out of blotting paper with a punch. The concentrations of the antibiotics used were penicillin G, 500 units per milliliter, except for enterococci, when a concentration of 50,000 units per milliliter was used; streptomycin, 1,000 mcg. per milliliter; chloramphenicol, 5,000 mcg. per milliliter; and chlortetracycline (Aureomycin), 12,500 mcg. per milliliter. An agar plate was flooded with a young broth culture that was just faintly turbid and provided the smallest inoculum capable of producing a confluent growth. The test for antagonism was set up as follows. Three equidistant points were chosen on the inoculated plate. The first received a disk saturated evenly with antibiotic A, the second received a disk similarly treated with antibiotic B, while on the third point two similar disks (A and B) were superimposed. Synergism was tested by placing two disks close enough together to produce overlapping of their zones of inhibition. After 18 to 24 hours of incubation at 37 C, the appearances caused by inhibition of growth were noted. A velvet stamp, previously sterilized by autoclaving, was then pressed evenly on the surface of the plate (the "primary" plate) and then pressed similarly on the surface of a sterile plate (the "replica" plate) that was incubated overnight. A total of 65 strains of common pathogens were tested with three pairs of antibiotics—penicillin with chloramphenicol, penicillin with chlortetracycline, and streptomycin with chloramphenicol. The organisms consisted of 28 strains of *Micrococcus* (*Staphylococcus*) *pyogenes* from human lesions, 17 strains of *Bacterium coli* from urinary infections, 10 strains of enterococci from cases of subacute bacterial endocarditis, and 10 strains of hemolytic streptococci. Penicillin with either chloramphenicol or chlortetracycline generally showed antagonism. Streptomycin with chloramphenicol was synergistic. These results refer to interaction after 18 to 24 hours. The only exceptions to these findings were that no interaction occurred.

Chinese Medical Journal, Peking

71:321-398 (Sept.-Oct.) 1953. Partial Index

- Effects of War on Health of People. F. Shih-Shan.—p. 321.
 Simplified *Antigen for Kala-Azar Complement Fixation Test with Observations in 742 Cases. W. Hsin-Chih, C. Hui-Lan, H. Tsung-Ch'ang and H. Lien-Yin.—p. 328.
 *Acute Perforation of Gastric and Duodenal Ulcers: Analysis of 100 Consecutive Cases and Discussion on Choice of Treatment. B. P. Phou, Y. H. Sheh, T. Y. Kou and Y. T. Lin.—p. 343.
 Clinical Study on Acute Infectious Hepatitis in Peking. C. Hsioh-Teh, C. Fu-Hsi and L. Chi-Ch'ang.—p. 359.
 Preparation and Clinical Use of Pertussis Immune Serum. K. Chung, C. H. Liu and C. S. Hsiang.—p. 371.

Perforation of Gastric and Duodenal Ulcers.—Phou and associates review observations on 100 consecutive patients with acute perforated peptic ulcer admitted to their hospital in the four years from August, 1948, to September, 1952. Since 47,500 patients were admitted during this period, the incidence of perforated ulcers was 0.21% of the total and 5.2% of the

1,917 operations for abdominal emergencies. The ages of the patients ranged between 16 and 72 years, but 62, or nearly two-thirds, were between 20 and 40. Although many reports indicate a male to female ratio of 10:1 in perforated peptic ulcers, the 100 cases reviewed here included 17 women, that is, the sex ratio was 4.9:1. There were no decided seasonal fluctuations. A typical history of peptic ulcer was found in 67 of the patients; 21 others had a history of gastric pain and dyspepsia, which, however, was not typical of ulcer; and 12 had no gastric symptoms. The ulcer was located at the duodenal bulb in 54 cases, in the prepyloric region in 34 cases, in the lesser curvature in 10 cases. In two of five conservatively treated patients the exact location was not ascertained. Of the 95 surgically treated patients, 67 were subjected to gastrectomy and 28 to suture. The mortality was not higher with gastrectomy than with suture, and the late results were much better after gastrectomy. Since literature reports likewise indicate the superiority of resection over suture, the authors recommend a wider use of gastrectomy. Listing the indications for either type of intervention, they stress the advisability of gastrectomy particularly for prepyloric or duodenal ulcers, for recurrent perforation, for those with recent hemorrhage, with multiple ulcers, with pyloric stenosis, and for those in whom strict medical treatment has proved ineffective.

Deutsche medizinische Wochenschrift, Stuttgart

78:1723-1754 (Dec. 11) 1953. Partial Index

- *Artificial Hibernation in Psychiatry; Preliminary Report. K. Kolle and M. Mikorey.—p. 1723.
 *Technique of Treatment by Artificial Hibernation. G. Brehmer and K. T. Ruckdeschel.—p. 1724.
 Treatment of Massive Hemorrhage Associated with Peptic Ulcers. L. Zukschwerdt, W. Hahn and I. Petersen.—p. 1725.
 Therapy of Advanced Carcinoma of Genitals. H. Mittelstrass.—p. 1729.

Artificial Hibernation in Psychiatry.—A preliminary report is presented from the Department of Nervous Diseases at the University of Munich on the use of Megaphen, a proprietary derivative of phenothiazine, for the therapeutic induction of artificial hibernation in 55 patients with endogenous psychoses (32 with schizophrenia and 23 with cyclothymic conditions) and in 16 patients with vomiting associated with increased intracranial pressure, diabetes insipidus, dazed condition, post-encephalitic obsessive syndrome, delirium tremens, and drug addiction, respectively. Satisfactory results were obtained in one-third of the patients with endogenous psychoses; results were particularly gratifying in manic patients, but chronic patients and those with silent catatonia or retarded depression also showed a good response. Megaphen proved particularly effective in patients with delirium tremens and in drug addicts. The authors caution against ambulatory treatment with Megaphen because of the occurrence of various complications. They feel justified in stating that for many patients the method of chemotherapeutic damping of the disturbed organism seems to be more promising, sparing, and biological than the rough method of electroshock.

Technique of Artificial Hibernation.—Brehmer and Ruckdeschel describe the technique of therapy with Megaphen (a proprietary derivative of phenothiazine), in psychotic patients. In the beginning, patients were given three daily injections of 50 mg. of Megaphen each, and occasionally an additional injection of Atosil, a proprietary preparation of N-(2'-dimethyl-2'-methyl)-ethylphenothiazine hydrochloride. Because of the occurrence of painful infiltration at the area of the injection, 1 cc. of a 1% solution of procaine hydrochloride was added to the Megaphen. Later, the injections of Megaphen were replaced by the oral administration of Megaphen tablets. One tablet contains 25 mg. of Megaphen; the daily dose of the drug varied from three tablets given three times daily to four tablets given five times daily; the latter dose was used in patients with severe motor unrest. Occasionally, particularly in manic patients, in those with alcoholic delirium and during the first days of withdrawal therapy in drug addicts, additional small amounts of barbiturates or meperidine hydrochloride were given. Combined or alternate treatment with pentylenetetrazol shock or electroshock proved possible and occasionally beneficial. Stabilization of the autonomous nervous system was not always obtained with

Megaphen and Atosil; on the contrary, considerable lability was frequently observed in the autonomic nervous system. Tachycardia, gastrointestinal disturbances, and hyperthermia occurred without demonstrable cause. Paralytic ileus occurred in a manic patient. A depressive patient, who had suffered cardiac infarction before the institution of Megaphen therapy, was suspected of having another infarct in the course of this treatment. Fatal pulmonary embolism occurred in a patient who had been stuporous for many weeks preceding Megaphen treatment and who was getting out of bed against advice. Collapse was harmless in patients who were in bed. Mild secondary anemia occurred in several patients after continued treatment with Megaphen for many weeks, but responded rapidly to vitamin B₁₂. Cutaneous allergic manifestations, particularly in female patients, were observed occasionally. Delirium similar to alcoholic delirium occurred in three patients but subsided within a few days after the dose of Megaphen had been reduced. Tremor without delirium occurred in an endogenous-depressive woman after treatment with relatively high doses of Megaphen combined with Atosil for several weeks. Weltmann's coagulation column was mildly increased in this patient, while bilirubin values were normal.

Journal of Clinical Pathology, London

6:253-338 (Nov.) 1953. Partial Index

- Proven Case of Congenital Toxoplasmosis. J. C. Valentine, W. F. Lane, C. P. Beattie and J. K. A. Beverley.—p. 253.
 Slide Culture as Means of Appraising Streptomycin Sensitivity of Tubercle Bacilli in Sputum. P. J. Collard and P. G. Mann.—p. 266.
 Development of Fluorescence Microscopy for Tubercle Bacilli and Its Use as an Adjunct to Histological Routine. D. M. McClure.—p. 273.
 Determination of Calcium in Biological Fluids by Flame Photometry. F. J. N. Powell.—p. 286.
 New Liver Function Turbidity Test. H. N. Antoniadou.—p. 290.
 *Heparin and Adrenal Cortex. J. V. Garrett.—p. 294.
 Aneurysms of Ascending Aorta Due to Medial Degeneration Associated with Arachnodactyly (Marfan's Disease). J. C. Sloper and G. Storey.—p. 299.
 Incidence and Significance of Iron-Containing Granules in Human Erythrocytes and Their Precursors. A. S. Douglas and J. V. Dacie.—p. 307.
 Species Specificity in Inhibition of Antglobulin Sera: Technique for Identification of Human and Animal Bloods. A. C. Allison and J. A. Morton.—p. 314.
 *Observations on Cases of Thrombocytopenic Purpura Due to Quinine, Sulphamezathine, and Quinidine. F. G. Bolton and R. V. Young.—p. 320.

Heparin and the Adrenal Cortex.—The occasional occurrence of thrombosis after operation has stimulated attempts to demonstrate an increased coagulability of the blood in the postoperative period. Crafoord, in the course of an investigation into the prevention of postoperative thrombosis by heparin, noted that heparin had less effect in prolonging the clotting time in the first 48 hours after operation than in normal persons or in the later postoperative period. At Garrett's clinic in Sheffield the coagulability of the blood after operation was investigated in 29 patients by means of a heparin clotting test, and an attempt was made to relate the changes observed to the increased activity of the adrenal cortex occurring as a result of the stress of operation. Statistically significant evidence was produced for a lessening of the effect of heparin on the plasma clotting time in the first 48 hours after operation. Similar effects were shown to occur after insulin coma and electroconvulsion therapy. These changes occur at approximately the same time as the fall in the eosinophil count and are assumed to be due to increased adrenocortical hormone production. Patients receiving corticotropin may show similar changes, and there is a danger that corticotropin and cortisone treatment may be complicated by thrombosis that is resistant to anti-coagulant therapy.

Thrombocytopenic Purpura Due to Drugs.—Bolton and Young point out that toxic purpura occurring in persons who have previously been sensitized by taking drugs often manifests itself in a few hours. Thrombocytopenia that may accompany this type of purpura can also occur in a very short time. If the natural life span of platelets is about five days, then this rapid onset of thrombocytopenia seems to indicate a peripheral destruction of platelets rather than a central failure of production. Some investigators found that a plasma factor was necessary for this agglutination or lysis of platelets. The

authors present the histories of three patients with thrombocytopenic purpura that appeared to be related etiologically to sensitization by quinine, sulfamethazine, and quinidine. The addition of the offending drug to platelet rich plasma from each of these three patients readily caused platelet agglutination and lysis in two and platelet agglutination only in the third.

Lancet, London

2:1163-1218 (Dec. 5) 1953

- *Antibiotic and Chemotherapeutic Agents in Treatment of Infantile Diarrhoea and Vomiting. R. H. Dobbs, M. B. Alexander, N. B. Capon and others.—p. 1163.
 *Gastric Aspiration in Haematemesis. G. N. Chandler and G. Watkinson.—p. 1170.
 Lactation and Fluid Intake. R. S. Illingworth and B. Kilpatrick.—p. 1175.
 Intensified Electroconvulsant Therapy: Review of Five Years' Experience. R. J. Russell, L. G. M. Page and R. L. Jillett.—p. 1177.
 Fumagillin in Amoebiasis. R. Elsdon-Dew, A. J. Wilmot and T. G. Armstrong.—p. 1180.
 Acute Salt Depletion Associated with Nephrotic Syndrome Developing During Treatment with Mercurial Diuretic. J. R. K. Freedy and D. S. Russell.—p. 1181.
 Sputum Disposal in Home. F. J. Baker.—p. 1184.
 Disposal of Tuberculous Sputum in Home: New Method. P. Stradling.—p. 1185.
 Mercurial Poisoning in Early Childhood. H. G. Farquhar.—p. 1186.
 Simple Oesophageal Cast. I. McL. Baird and H. Cohen.—p. 1187.
 Dissecting Aneurysm of Aorta: Recovery After Treatment with Hexamethonium. D. A. Pyke.—p. 1189.

2:1219-1272 (Dec. 12) 1953

- The University and Surgery. M. F. A. Woodruff.—p. 1219.
 The Suprapubic Catheter: Method of Treating Urinary Retention. C. G. Scorer.—p. 1222.
 Icterus of Brain in the Newborn. A. E. Claireaux, P. G. Cole and G. H. Lathe.—p. 1226.
 Yeasts in Vaginal Flora: Their Incidence and Importance. S. M. Dawkins, J. M. B. Edwards and R. W. Riddell.—p. 1230.
 Hydrocephalus Associated with Deficiency of Vitamin A. J. W. Millen, D. H. M. Woollam and G. E. Lamming.—p. 1234.
 Aureomycin-Resistant Staphylococcal Enterocolitis: Report of Two Fatal Cases. D. L. Gardner.—p. 1236.
 Amino-Acid Composition of Eight Dermatophyte Fungi. P. J. Hart.—p. 1238.
 Localised Pretibial Myxoedema Treated with Cortisone. R. S. M. D. Inch and C. F. Rolland.—p. 1239.
 Corticotrophin Treatment in Polyneuritis with Periarthritis Nodosa. L. A. Liversedge and H. M. Leather.—p. 1241.
 Mouth-Piece for Use with Pneumoflator in Respiratory Paralysis. R. A. Beaver and R. W. Gilliat.—p. 1243.

Antibiotic and Chemotherapeutic Agents in Infantile Diarrhea.—Controlled trials of chlortetracycline (Aureomycin), chloramphenicol, and sulfadiazine in the treatment of infantile diarrhea and vomiting were made at ten separate centers in Great Britain during 1950 to 1952. The trial drugs were administered by mouth in doses of respectively, 75, 75, and 125 mg. per pound of body weight a day for seven days. A total of 1,168 cases (789 mild and 379 severe) was included in the analysis of the results. Infants found to have either *Salmonella* or *Shigella* infections were excluded from this analysis. The numbers in the different treatment groups were 154 treated with chlortetracycline, 415 with chloramphenicol, 247 with sulfadiazine, and 352 controls. The mean fatality rate was 2.8%. Clinical progress after the start of treatment was assessed on the following criteria; average duration of diarrhea, average time to full clinical recovery, and proportion of mild cases that became severe. The group treated with chlortetracycline progressed more favorably than the controls as regards the proportion of mild cases that became severe but not as regards the two other criteria. The groups treated with chloramphenicol and sulfadiazine progressed more favorably than the controls as regards all three criteria. The progress of the group treated with sulfadiazine was significantly better than that of any other treatment group. It is felt that selection of the most appropriate drug for the treatment of individual cases of infantile diarrhea and vomiting may become possible when more is known of the etiology of the disease. The results of the present investigation indicate sulfadiazine and chloramphenicol as the drugs of choice, with the balance of evidence in favor of sulfadiazine. Their oral administration may be considered as a valuable addition to established methods of treatment.

Gastric Aspiration in Hematemesis.—Chandler and Watkinson feel that the early recognition of recurrent hemorrhage and the accurate identification of the site of bleeding in hematemesis and melena are of great clinical importance but are also beset with difficulties. It was thought that in the acute stages of gastroduodenal hemorrhage some abnormality of gastric secretion of diagnostic value might be present. For this reason 24 hour gastric analysis previously used in the study of peptic ulcer and achlorhydria was applied to the problem. The authors report here the results of 24 hour gastric analysis in 105 consecutive and unselected patients admitted, as emergencies, with hematemesis or melena. They found that early hourly gastric aspiration in 105 patients with hematemesis yielded valuable information and proved harmless. The bedside observation of blood staining in the aspirated specimens was useful because further hemorrhage could be detected before other clinical criteria had indicated its presence; its absence sometimes aided localization of the ulcer. A study of the acidity of aspirated specimens revealed that high nocturnal acidity is usual in bleeding chronic duodenal ulcer, that nocturnal neutralization is commoner in bleeding than in uncomplicated gastric ulcer, and that achlorhydria is observed at the time of hemorrhage in acute peptic ulceration, the acid often returning after several days' observation. Achlorhydria in the acute stages of gastrointestinal hemorrhage is thought to be an added indication for continued medical treatment.

Minerva Anestesiologica, Turin

19:285-312 (Nov.) 1953

*Physiopathology and Technique of Controlled Hypothermia Combined with Administration of Ganglioplegics: Experimental and Clinical Studies. E. Ciocatto and A. D. Cattaneo.—p. 285.
Cryo-Anesthesia in Amputation of Lower Extremities. M. Miglietta, L. Parodi and L. Cavalleri.—p. 308.

New Apparatus for Hypothermia.—The authors designed an apparatus to induce hypothermia and restore body temperature to normal rapidly, since experiments had shown that the survival of animals subjected to hypothermia was in direct proportion to the velocity with which it was induced and withdrawn. The apparatus consists of several units by which and through which water from a reservoir is made to circulate through a two layer rubber suit composed of a hood, a jacket with sleeves (the jacket is made in sections so that either the front or back right or left half of the chest can be left uncovered), and trousers. The suit is put on the patient, and the flow, pressure, temperature, and distribution of the water to its various parts are regulated by a pump, a hydraulic valve, and several special units. The outflow of the water from the suit can also be regulated; as a rule, the authors let it out when it reaches a temperature of 0 C. With this apparatus the refrigerating water, which is obtained from melted ice, is in contact with more than four-fifths of the body surface, and the temperature can be lowered to 25 to 27 C in from 30 to 40 minutes. The initial values can be restored rapidly by sending into the suit hot water that is let out when it reaches a temperature of 60 C. After numerous experiments on guinea pigs and dogs, the authors induced hypothermia in 59 patients with neurological and heart diseases. It was preceded by administration of ganglioplegics (Fargan and Pendiomid). A temperature of from 28 to 32 C was reached in from 30 to 40 minutes with the apparatus, while electrocardiograms were taken every 5 to 10 minutes, and the pulse rate, blood pressure, respiration, and rectal temperature were checked continuously. Oxygen was administered during the operation after which the body temperature was restored to 35 C in about 30 to 40 minutes; at this point the patient regained consciousness and reheating was discontinued. The initial values were reached in from five to six hours. The post-operative course, during which the patients were given a sodium carbonate enema because their acidity had been increased by the intervention, was uneventful. Surgery was performed in 39 patients with congenital malformations of the heart and great vessels; only 1 died of cerebral thrombosis 36 hours after the intervention. The heart had stopped for about 10 minutes in an 11-year-old boy of this group in whom a valvotomy was performed. The circulation was restored by

massaging the heart; the boy made a complete recovery; and there were no cerebral sequelae. Interventions on three patients with acquired malformations of the heart (mitral stenosis) were successful. In one of these a valvotomy was performed under direct vision on a bloodless heart after ligation of the pulmonary artery; the heart was excluded from the circulation for about 4 minutes and 47 seconds. Interventions on patients with involvement of the nervous system (gliomas, meningiomas, angioblastomas, and sarcomas) gave good results in 15. One patient died of coma and one of embolism, 14 and 56 hours, respectively, after the operation. The age of these 59 patients ranged from 3½ to 58 years. These results are very encouraging.

Monatsschrift für Kinderheilkunde, Berlin

101:433-468 (Oct.) 1953. Partial Index

Observations on Gastrointestinal Passage of Premature Infants. V. Dietel and R. Schmöger.—p. 433.
Attempted Treatment of Interstitial Pneumonia with Convalescent Blood. V. Dietel.—p. 438.
Malignant Thymus Tumor in a Child. G. Bücheleres.—p. 442.
Alcaptonuria in Childhood. J. Oehme.—p. 445.
*Erythroblastosis in Triplets. O. Prokop and C. Vollbrand.—p. 452.

Erythroblastosis in Triplets.—Prokop and Vollbrand report the case of a woman who on Nov. 17, 1952, gave birth to triplets, all girls, H., G., and M., weighing 2,250 gm., 3,000 gm. and 3,200 gm., respectively. She had delivered three other children in 1941, 1943 and 1950, and all of these had been free of jaundice or anemia. The two heavier triplets, G. and M., had been icteric since birth, whereas H. had been very pale and only slightly icteric. Within the next few days, the icterus became more pronounced in G. and M., whereas in H. it disappeared, but the pallor increased. When consulted the author suggested erythroblastosis of the newborn in G. and M. and anemia neonatorum in H. The author describes the results of the examinations and the further course of the development of the triplets and says that, as far as he was able to ascertain, erythroblastosis neonatorum has been described in triplets only once before. Other noteworthy aspects were the extremely mild course and the quick response to two blood transfusions in each of the triplets. The fact that the disorder took a somewhat different course in H. than in G. and M. suggested that the triplets were dichorionic rather than monochorionic as had been suspected at first. The dichorionic character was supported by serologic studies that revealed the following formulas: for the father A₁MN P+ccDE; for the mother A₁N P+ccde; for triplets G. and M. A₁N P+ccDE; but for H. A₁MN P+ccDE. The serum of the mother contained three irregular antibodies. That the clinical picture presented by H. differed from that in the other two triplets was explained by the fact that H. had an additional antigen.

Münchener medizinische Wochenschrift, Munich

95:1289-1316 (Nov. 27) 1953. Partial Index

Blood Cell Count and Determination of Serum Protein Values. R. Emmrich.—p. 1289.
Study of Metabolism in Infants with Diseases of Liver (Contribution to Infantile Cirrhosis of Liver in Tyrol). H. Gibitz, R. Stöhr and H. Zierhut.—p. 1293.
*Experiences with Potentiated Anesthesia and Artificial Hibernation. F. Zettler.—p. 1295.

Potentiated Anesthesia and Artificial Hibernation.—According to Zettler, blockade of the autonomous nervous system combined with reduced metabolism exerts a potentiating effect on the hypnotic, narcotic, and analgesic agents. Three grades of functional blockade of the autonomous nervous system combined with anesthesia may be distinguished. 1. The so-called anesthesia premedication, i. e., anesthesia facilitated by the prolonged sedative-analgesic effect of the drugs employed, consists of the oral administration of 0.05 gm. of Atosil (N-[2'-dimethyl-2'-methyl]-ethylphenothiazine hydrochloride) and 0.2 gm. of phenobarbital in tablets on the evening preceding the surgical intervention, and an intramuscular injection of 3 to 6 cc. of a "lytic cocktail" comprised of 0.05 gm. of a proprietary phenothiazine derivative called Megaphen, with 0.05 gm. of Atosil, and 0.1 gm. of meperidine (Dolantin) hydrochloride two hours before the surgical intervention, carried

out with the patient under peridural, local, or nitrous oxide-ether anesthesia. 2. The potentiated anesthesia proper, or partial artificial hibernation, with pronounced stabilization of the autonomous nervous system in the sense of isolation consists of that of the grade 1 anesthesia premedication (6 cc. of the "lytic cocktail" given intramuscularly three hours before the operation) and in addition one hour before the operation a continuous drip infusion (5% dextrose) intravenously or with additional hyaluronidase, of 1 to 2 cc. of the "lytic cocktail" every 15 minutes. The operation then is performed with peridural or local or with general anesthesia with nitrous oxide-ether. Intubation, oxygen, curare, and blood transfusion may be used if required. 3. Artificial total hibernation (a condition of slowed life) consists of the potentiated anesthesia proper (grade 2) with the "lytic cocktail" given three hours before the operation and an infusion with the fractionated "lytic cocktail" and 0.1 to 0.2 gm. of sparteine sulfate two hours before the operation combined with refrigeration performed by means of ice bags one hour before the operation. The "cocktail" is given in 24 hour alternation in the postoperative stage. Additional medication may consist of phenothiazine derivatives, hormones, and vitamins. Potentiated anesthesia of grade 1 and 2 was used in the course of the last three months in 57 patients admitted to the surgical department of the University of Erlangen, Germany. Of the 57 patients, 16 were operated on the brain and spinal cord, 5 on the lungs or esophagus, 27 on gallbladder, stomach, or spleen, and 9 on colon or rectum. Total artificial hibernation was employed in 10 patients subjected to neurosurgical intervention and in 8 patients in purely therapeutic form for ulcerous colitis, endangitis, transverse paresis after accident, and for production of analgesia in inoperable tumors. The usual amount of the anesthetic agent could be reduced to one-third or one-fourth. Nitrous oxide-oxygen may be mixed in the ratio of 1:1 with satisfactory effect. The prolonged sedative effect lasted for about four to eight hours after the operation. Intubation was carried out without any additional medication in one-third of the patients operated on; bronchial or glottic spasms did not occur. The stabilization of the circulation was impressive. There was less lowering of blood pressure than is usually associated with peridural anesthesia. In the course of total artificial hibernation, morphine, hypotensors, and sympathicomimetic agents are contraindicated. Relief of pain was obtained with the potentiated anesthesia. Potentiated anesthesia and artificial hibernation have already become a principle of management by which the limits of surgery can be widened.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:3097-3160 (Nov. 28) 1953. Partial Index

Determination of Coagulation Time: Simple Method for Practical Use. E. Hecht.—p. 3101.

*Postvaccinal Meningo-Myelo-Encephalitis. P. Crezée.—p. 3104.

Diagnosis and Treatment of Herniation of Nucleus Pulposus in Lumbar Region. A. Kemp.—p. 3116.

Postvaccinal Meningomyeloencephalitis.—Crezée says that in 1946 and 1947 about 80,000 vaccinations were performed at the military hospital in Utrecht on military personnel to be sent to Indonesia. The majority were primary vaccinations. Among this number, postvaccinal complications of an encephalitic nature were found to develop in 15 and 7 of those patients came under Crezée's observation. One of them died shortly after arrival at the hospital. The histories of the other six patients are presented. Four were 20 years of age, one was 21, and one 23. The disturbances of the central nervous system that were of short duration appeared from 8 to 16 days after primary vaccination. Since two of the patients had myelitis and one an isolated meningitis, the author feels that the more comprehensive term meningomyeloencephalitis is preferable to encephalitis. One of the patients had a relapse of meningoencephalomyelitis two months later. The author was not able to find other reports of recurrences of postvaccinal encephalitis, but there have been reports of recurrences of encephalomyelitis in rubeola. Exogenic contributory factors such as respiratory disturbances were present in several of the patients. One patient had status dysraphicus (faulty closure of the neural tube).

Nordisk Medicin, Stockholm

50:1455-1492 (Oct. 22) 1953. Partial Index

Vestibular and Acoustic Side-Effects of Streptomycin and Dihydrostreptomycin. H. C. Andersen and H. H. Ohrt.—p. 1461.

*Treatment and Prognosis in Tuberculous Meningitis. H. Hauge.—p. 1472.

Combination of Chemical and Antibiotic Agents in Tuberculosis. A. Kristenson.—p. 1476.

*Tuberculous Meningitis with Reference to Results After Streptomycin Treatment. T. Rasmussen.—p. 1478.

Primary Tuberculosis in Old Persons. E. Eilertsen.—p. 1480.

Treatment and Prognosis in Tuberculous Meningitis.—Of 44 patients with tuberculous meningitis observed for more than eight months after treatment 23, of whom 2 had miliary tuberculosis, were cured. Of the 21 who died, 13 had miliary tuberculosis. All were treated with streptomycin intrathecally and intramuscularly. The last 19 were given *p*-aminosalicylic acid (PAS) from the start of treatment, 3 of them also received isoniazid. Of these patients, 16 recovered; 2 of the 3 who died were extremely ill on admission and had miliary tuberculosis, while in the third streptomycin-resistant tubercle bacilli were present before treatment began. Hauge stresses the importance of starting treatment as soon as possible. The prognosis is best for children over 5, not so good for smaller children and older persons. The results of treatment are less favorable when the meningitis is combined with miliary tuberculosis. Although the prognosis in each case of tuberculous meningitis will always be somewhat uncertain during the first part of the treatment, the results now attained give cause for optimism. Definite clinical improvement should not be counted on until toward the end of the second month of treatment. Examination of the spinal fluid gives indications as to prognosis. The sugar values afford the best evidence of how long intraspinal therapy should be continued; they may become normal in the first month, often in the second or third month. The cell count and especially the protein values will continue to rise for several weeks, presumably because of a special reaction in tuberculous meninges. Such increase is not considered a contraindication for continued intraspinal therapy. The values most often do not become normal till from six to nine months after the introduction of intraspinal treatment.

Tuberculous Meningitis with Reference to Results After Streptomycin Treatment.—From 1931 to 1953, 80 patients with tuberculous meningitis, aged from 6 months to 68 years, were treated in the epidemic department of Odense Hospital. The age distribution showed three peaks—at about 3-4 years, at 14 years, and at 21 years. Up to 1946 the average age was 17.2; since then, 9.5. After the introduction of streptomycin the course of the disease was decisively changed, and for the first time it was possible to cure tuberculous meningitis. The recovery rate was 50% in the 3-14 group, lower in the other age groups. The possibilities for lasting recovery are steadily growing. Prompt treatment is necessary. Complicating tuberculosis elsewhere aggravates the prognosis. Of 16 patients treated with streptomycin, 4 are well after a follow-up for from two to four years, 2 are still undergoing treatment; of the 10 who died, 2 were unconscious on admission. Intramuscular injection has been the standard method, with continuous treatment for the first two or three months, then fractionated treatment. Pauses in the streptomycin treatment, if possible, are advocated because of the side-effects on the eighth cranial nerve, which apparently occur after massive streptomycin treatment. Beginning impairment of hearing seems to disappear on cessation of the streptomycin treatment and recurs on resumed treatment. In the more recent period Rasmussen found it possible to prolong the intervals by the use of isoniazid; by shifting the two preparations the patients were kept free from recurrence and normal temperature was maintained and at the same time side-effects on the hearing were avoided. Peripheral paresis and decreased muscular strength that occur when the temperature is about to become normal are perhaps reasonably attributable to streptomycin side-effects.

Presse Médicale, Paris

61:1499-1530 (Nov. 18) 1953. Partial Index

- *Indications for and Results of Vertebral Angiography in Neurosurgery. D. Petit-Dutaillis, B. Pertuiset, J. Rougerie and P. Namin.—p. 1499.
- Histopathological Development of Fibrohyaline Masses of Pseudotumoral Silicosis. A. Policard and A. Collet.—p. 1503.
- *Value of Punch Biopsy of Liver in Diagnosis of Atypical Forms of Infectious Hepatitis and Infectious Mononucleosis. F. Bénazet, R. Sohler and R. Fontanges.—p. 1506.
- Cutaneous Lesions Caused by Prick of Sea-Urchins: Clinical, Histological, and Experimental Study. P. Témine.—p. 1509.
- *Treatment of Chronic Obliteration of Superficial Femoral Artery in Arteritis. J. Oudot and J.-M. Cormier.—p. 1512.

Vertebral Angiography.—Radiography of the vertebral artery done percutaneously is a relatively easy technique, although the extreme vasomotor sensitivity of this artery can make its injection difficult. The authors performed 162 vertebral arteriographies in the period from 1949 to July, 1953. They had four major accidents, two of which were fatal. One of the nonfatal accidents was unexplainable; the other three were due to technical mistakes that have been corrected. The authors feel that this method is not dangerous, if the proper indications are followed and the technique well carried out. It should be used as an examination prior to certain neurosurgical interventions. The major indication for vertebral arteriography is a spontaneous meningeal hemorrhage with normal bilateral carotid arteriography. The results achieved in the case of cerebellar tumors are disappointing, but, in tumors of the cerebellopontile angle, the results have been sufficiently good to warrant vertebral arteriography when such a diagnosis is suspected. Deep tumors of the median axis are an indication of choice. In all intracranial tumors, the authors have found that the two most important vascular displacements to be noted are the one in the frontal plane of the terminal bifurcation of the basilar trunk and the one to either side of the distances separating the bifurcation of the basilar trunk from the end-point of the curves made by the two posterior cerebral arteries as they go around the pedicles. Nothing definite can be said about posterior hemispheric neoformations; but it is hoped that, with technical improvements in injection and serial radiograms, many obscure points will be made clear.

Punch Biopsy of Liver in Hepatitis and Mononucleosis.—Punch biopsy of the liver, though not usually necessary in the diagnosis of viral infectious hepatitis or infectious mononucleosis, becomes useful or even indispensable when atypical forms of these diseases are encountered. It is sometimes impossible to differentiate between them clinically, hematologically, or on the basis of functional liver tests and so-called "hepatic serology." The Paul-Bunnell-Davidsohn reaction is more dependable, but not always successful, as demonstrated by the authors' seven cases reported in detail. Punch biopsy appears to be the most reliable deciding factor in the differential diagnosis of these two kinds of hepatitis. It should be done as early as possible, since the lesions are more characteristic in the early stage of the disease.

Obliteration of Superficial Femoral Artery in Arteritis.—Of the various surgical treatments for arterial thrombosis, the one used oftenest by the authors in this series of patients with thrombosis of the superficial femoral artery was vascular grafting. Venous autografts were used in two cases, with mediocre results. Arterial homografts were used for 41 grafts in 35 patients, with the following results: 13 successful of 14 superficial femoral grafts; 4 of 6 femoropopliteal; 2, 1 lasting only 9 months, of 14 iliofemoral grafts; 6 of 6 aortic bifurcation grafts extending to the superficial femoral; and 1 fairly good result among 11 multiple grafts. Endarterectomy alone was done in two cases and occasioned no improvement in the disease. Thirteen lumbar sympathectomies were done; for the five patients for whom it was the only treatment, the benefit was only partial, while in the others, grafting was done subsequently, and results were far superior. Adrenalectomy yielded one good result out of five cases; parathyroidectomy was not performed. The authors state that these methods do not exclude each other but involve different indications. Simple thromboses of the superficial femoral artery ought to be treated

by arterial homografting often combined with a segmental clearing of obstruction. In the case of upward extension, there is no anatomic reason why a graft may not be stretched up as far as the renal arteries; but in the lower region of the leg a necessary requirement to grafting is that one of the chief arteries of the leg be permeable in its initial course. If not, sympathetic operations are indicated, sometimes in combination with bilateral adrenal medullectomy, particularly in younger patients.

Revista Paulista de Medicina, São Paulo

43:275-368 (Oct.) 1953. Partial Index

- *Etiology of "Epidemic Asthma" in Bauru. E. Mendes and A. B. Ulhôa Cintra.—p. 275.
- Diffuse Histoplasmosis and Hodgkin's Disease. G. Del Negro, R. Veronesi and M. de Assis Figueiredo.—p. 291.
- Photography and Cinematography in Peroral Endoscopy. J. A. de Arruda Botelho and W. A. Marchi.—p. 323.
- Surgical Treatment of Spontaneous Aneurysm of Peripheral Arteries. O. Martins de Toledo.—p. 341.

Epidemic Asthma.—The term epidemic asthma has been used for the last 30 years to designate epidemics of bronchial asthma caused by allergens contained in certain parasites of cereals or in the dust of the castor bean. The authors report a severe epidemic that occurred in August, 1952, in Bauru, São Paulo. The epidemic involved 150 persons, with nine deaths occurring early in the course of the epidemic. There is in the city a large factory for extraction of castor oil, in which they introduced a new method of extraction of the oil with hexane. None of the patients, both adults and children, worked in the factory, but all of them lived in the city. The epidemic was caused by some allergen in the air derived from the dust of castor bean. The epidemic subsided when it rained. When the day was clear and windy, new cases appeared in districts of the city subjected to the wind from the factory. Some of the patients lived in Agudos, a city 15 km. from Bauru. The symptoms subsided as long as the patients remained in Agudos and reappeared as soon as they returned to Bauru. Some of the patients had the same experience four or five times. Cutaneous tests, passive transfer of the antibodies, and experimental reproduction of asthma were made in 30 patients with positive results. The epidemic subsided when the factory was temporarily closed by the government. It recurred at reopening of the factory and handling of the material with the hexane method. The factory was permanently closed. No new cases were reported. The allergen of the dust of the castor bean is soluble in water and is precipitated in alcohol. For prevention of epidemics, the dust of this and of some of the other seeds used in the oil industry should be kept in containers with water and alcohol, where the allergens will be dissolved and precipitated. The liquid so obtained could be poured into a hole and covered with earth so as to prevent its exposure to the atmosphere.

Schweizerische medizinische Wochenschrift, Basel

83:1103-1126 (Nov. 14) 1953. Partial Index

- Problems of Cardiac Insufficiency. R. Hegglin.—p. 1103.
- *Hyperglobulinemic Purpura of Waldenström and Besnier-Boeck-Schaumann's Disease. A. Gautier and P. A. Maurice.—p. 1110.
- Hypotensive Effect of Hydralazine Hydrochloride Combined with Blood Letting. A. Schmid and H. Kellner.—p. 1114.

Hyperglobulinemic Purpura and Sarcoidosis.—Left peripheral facial paralysis occurred suddenly in a 50-year-old woman who for several months had had Waldenström's syndrome of hyperglobulinemic purpura consisting of recurrent purpuric eruptions on the legs, mild normocytic anemia, and hyperglobulinemia with pronounced increase of gamma globulin. There was increased plasma coagulability, but the patient had positive results from the capillary resistance test (employing lacing). The bone marrow showed mild plasmocytosis with definite eosinophilia. Multiple calcified pulmonary and mesenteric lesions were revealed by roentgenologic examination. Within one month, the facial paralysis subsided completely as a result of treatment with vitamins B₁ and C. Six months later the patient had a sudden attack of severe pain in her

left leg. Obstruction of the arteries at the level of the upper third of the calf was observed. Conservative treatment with procaine hydrochloride given intravenously, vasodilators, and ganglion blocking agents failed and so did arteriectomy. Amputation of the extremity was carried out at the lower third of the thigh. The anatomicopathological examination of the amputated specimen revealed thickening of the walls of the popliteal, posterior and anterior tibial arteries with pronounced atheromatosis. The lumens of the vessels were filled with thrombotic masses of hyaline appearance. Microscopic examination revealed interstitial myositis resulting from Besnier-Boeck-Schaumann's disease. It is known that sarcoidosis in its active phase may be associated with hyperglobulinemia, particularly of the gamma globulin, and that this disturbance is to be considered as a reaction of the reticuloendothelial system in the course of sarcoidosis. It was Teilum who demonstrated that the dysproteinemia associated with sarcoidosis favors, in certain areas of the reticuloendothelial system, the occurrence of precipitates of a homogeneous substance passing on to hyalinosis (paramyloidosis). The authors believe that the hyalinosis particularly of the adventitia of the small arteries and arterioles in their patient, as well as the purpura were the results of the hyperglobulinemia. The asymptomatic myositis revealed by microscopic examination made it possible to establish sarcoidosis as the cause of the Waldenstrom's syndrome, and it confirmed Myers and co-workers' suggestion that muscle biopsy may aid in establishing the diagnosis of sarcoidosis in the absence of cutaneous lesions. The occurrence of facial paralysis was reported previously and not unfrequently in association with sarcoidosis. It may be assumed that the pulmonary and mesenteric lesions in the authors' patient were the result of sarcoidosis.

Semaine des Hôpitaux de Paris

29:3533-3594 (Nov. 10) 1953. Partial Index

- *Coxsackie Virus and Its Relationship to Bornholm Disease. P. Lépine.—p. 3533.
Bornholm Disease. G. Desse.—p. 3539.
Rheumatic Manifestations of Various Virus Diseases. R. Bastin.—p. 3540.

Coxsackie Virus and Its Relationship to Bornholm Disease.—Coxsackie virus was directly isolated by injecting into infant mice suspensions of feces from 42 patients; in 14 of these patients a clinical diagnosis of pleurodynia (Bornholm disease) had been made; in 16 patients various disturbances of the nervous system, such as nonparalytic poliomyelitis, acute aseptic meningitis, encephalitis, ascending myelitis, were present; and in the remaining 12 patients acute infectious diseases, such as grippe, abdominal syndrome, and acute rheumatism, had been diagnosed. Coxsackie virus, which now has been recognized as the pathogenic agent of epidemic myalgia, is capable of causing in man an infection with protean manifestations of which, as a rule, muscle pain is the present; symptom; the related syndromes depend on the same etiological agent. The physical characteristics of the virus are very similar to those of the poliomyelitis virus; it is one of the smallest of all known viruses. It may be isolated from patients' feces by taking advantage of the fact that infant mice are particularly sensitive to the Coxsackie virus. The infected mice were killed, and microscopic examination revealed changes that were essentially located in the muscle fibers; these changes were characterized by an acidophil hyaline degeneration that terminated in rupture of the fiber. Depending on the individual strain, lesions resulting from infiltration were more or less pronounced. The nerve ends were spared. Microscopic examination of muscle biopsy specimens obtained from patients with Bornholm disease in the course of its acute phase showed changes very similar to those observed in the animals. The Coxsackie virus may be identified by isolation or by serologic methods. There are many serologic types that do not show cross immunity between one another, but three of them prevail and may be commonly observed in France; it may, therefore, be possible to confirm the clinical diagnosis because of the appearance of a deviation of the complement positive for one of the specific antigens.

Tidsskrift for Den Norske Lægeforening, Oslo

73:799-838 (Nov. 1) 1953. Partial Index

- *Bronchial Carcinoma: Examination of Material from 1948 to 1952 in Haukeland Hospital. J. R. Myhre.—p. 802.
New Ways of Treating Tetanus. N. Helsingen Jr. and H. P. Østergaard Kristensen.—p. 805.

Bronchial Carcinoma.—From 1948 to 1952, 45 cases of bronchial carcinoma in 29 men and 16 women were treated in the medical department of Haukeland Hospital. Three patients were between the ages of 20 and 40; seven were between 40 and 50; the rest were over 50. Diagnosis was made during life in 38 cases. Information on the first manifestation of the disease was available in 28 cases. The first symptoms appeared an average of eight to nine months before diagnosis was made. Medical advice was sought an average of five months before diagnosis. At least 13 cases were probably inoperable on the first consultation. Surgical treatment was attempted in eight cases; six were inoperable. Pneumonectomy was done in two cases; one patient is well five years after the operation, and the other succumbed to empyema on the affected side a year after operation. Bronchoscopy, usually with biopsy of bronchial mucosa, and planigraphy were the most important aids in diagnosis. A positive histological diagnosis is important in verifying the result of bronchoscopy. Although cough is the most frequent symptom in bronchial carcinoma, it is sometimes absent, even with roentgenologically demonstrated pulmonary infiltration. Vague but troublesome pain in the chest, upper back, and shoulders is often the first symptom and dominates for months. Hemoptyses frequently appear as a scanty mixture of blood and sputum. When pneumonia recurs in the same part of the lung or there is protracted pneumonia, bronchial carcinoma should be suspected. The establishment of hard enlarged lymph nodes in the axillae or supraclavicular region is often decisive. The occurrence of drumstick fingers and hour-glass nails may be helpful in diagnosis; changes in hands and fingers may be the first symptom. Myhre says that in spite of great diagnostic and therapeutic difficulties the prognosis in bronchial carcinoma will improve when physicians always bear the disease in mind, when bronchoscopy, biopsy of the bronchial mucous membrane, and planigraphy are more extensively employed, and when exploratory thoracotomy is applied on wider indications, but even with optimal use of these methods too many patients are inoperable when the physician sees them for the first time. Encouraging results are reported by Hansen and Kjaer from the thoracosurgical department of Øresund Hospital for 1944-1952.

Zentralblatt für Gynäkologie, Leipzig

75:1169-1200 (Nov. 30) 1953. Partial Index

- *Brief Oral Use of Oxytetracycline (Terramycin) in Puerperal Mastitis. A. Heim.—p. 1172.

Oxytetracycline (Terramycin) by Mouth in Puerperal Mastitis.—Heim says that in 1952 he resorted to oral medication with oxytetracycline (Terramycin) in 15 women with puerperal mastitis. In all but one of these women, in whom treatment was begun too late, cure was obtained within a few days without resorting to incision. A total of 8 gm. of oxytetracycline was given in the course of four days. Although the increase in temperature always subsided on the third day, medication was continued on the third and fourth days to prevent a recurrence of the acute inflammation. Except in cases in which painful rhagades were present, breast feeding was continued. Otherwise, the breast pump was used temporarily. The author stresses the importance of the "brief" treatment, only 8 gm. of oxytetracycline being used, whereas in other procedures from 15 to 25 gm. of the drug is given. Treatment must begin as soon as the temperature increases. If abscess formation results despite medication with oxytetracycline, as in the aforementioned case and in patients referred to the clinic with advanced mastitis, incision should be postponed until demarcation of the abscess is evident. This is likewise promoted by oxytetracycline medication. In this case the incision can be relatively small and further extension of the suppurating process to other parts of the breast can be prevented.

BOOK REVIEWS

The Year Book of Drug Therapy (1953-1954 Year Book Series). Edited by Harry Beckman, M.D., Director, Departments of Pharmacology, Marquette University Schools of Medicine and Dentistry, Milwaukee. Cloth. \$6. Pp. 538, with 73 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1954.

This year book covers the literature abstracted from journals received between August, 1952, and August, 1953. All articles abstracted deal with reported developments in therapeutics and are arranged under subdivisions according to the various specialties. One section is restricted to antibiotics and sulfonamides. The editor's introduction highlights the articles of major interest or significance; he also makes specific comments, which appear in brackets after some of the abstracts. His well-known pungent style adds zest to the critical analyses embodied in these comments. Not all authorities will agree with all of them, but for the most part they represent a sound approach to therapeutic problems. The editor cannot be criticized for the failure of authors to use recognized generic terminology for drugs in the titles and text of many of the articles that are abstracted. Undecylenic acid is misspelled as "undecylinic acid," apparently by the authors, in one article abstracted on page 70. There is both an author and subject index. The binding and typography are excellent, and the size is convenient for rapid reading and quick reference. All practicing physicians should find this book a useful review of recent observations on drug therapy.

Treatment of Toxic Goiter with Radioactive Iodine. By Lindon Seed, M.D., Director, Isotope Laboratory, Grant Hospital, Chicago, and Theodore Fields, M.S., Assistant Director, Radioisotope Laboratory, Hines Hospital, Hines, Illinois. Preface by George V. LeRoy, M.D., Associate Dean, Division of Biological Sciences, University of Chicago, Chicago. Publication number 197, American Lecture Series, monograph in American Lectures in Endocrinology. Edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Cloth. \$3.75. Pp. 116, with 17 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This monograph was written jointly by a surgeon and a radiophysicist and is predicated on their experiences in the treatment of toxic goiter with radioactive iodine. The authors' pessimistic view that the radioisotope laboratory cannot pay its own way is probably incorrect. Recent advances in isotope tracer and therapeutic techniques, including the availability of precisely calibrated solutions and capsules of radioactive material from commercial suppliers, will undoubtedly greatly simplify the problems of purely clinical laboratories. There is a good discussion of the metabolic circuit of radioactive iodine and of its effective half life. This monograph should prove valuable for those who are interested in the mechanics of installing a small isotope laboratory, and it gives in concise fashion the indications for isotope therapy in toxic goiter as well as the results of treatment, including a discussion of such complications as hypothyroidism, exacerbation of symptoms, local reaction, and exophthalmos. These complications are infrequent enough to warrant the authors' prophecy that "the present surgical treatment of exophthalmic goiter will be replaced largely by radioiodine therapy."

Roentgen Diagnosis of the Heart and Great Vessels. By Erich Zdansky, M.D., Professor of Roentgenology, University of Vienna, Vienna. Translated by Linn J. Boyd, M.D., F.A.C.P., Professor and Director of Medicine, New York Medical College, Flower and Fifth Avenue Hospitals, New York. First American edition. Cloth. \$15.50. Pp. 500, with 334 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

This scholarly treatise has been published in many German editions. The translation is a revision of the last German edition published four years ago. It is a credit to the translator that the book has probably become more readable in the

translation, although the nature and treatment of the subject still makes it a book for study rather than perusal. The serious reader will be rewarded by one of the most thorough analyses of the roentgenographic normal and pathological anatomy of the heart currently available. The sections on the pathological anatomy of the heart are enhanced in value by the excellent treatment of the mechanisms involved in producing the pathological variations. Although some of these explanations may be open to the criticism of being theoretical, the approach is sound. The section on congenital malformations of the heart is small, a reflection of the fact that this book deals predominantly with adult cardiology. As far as the section on congenital malformations goes, however, it gives a working knowledge of the subject without getting too deeply involved in the analysis. The section on the aorta and its pathological alterations is exceptionally good. The book is excellently illustrated with roentgenograms of high quality supplemented by line drawings and colored illustrations. It should be an asset to the library of any cardiologist, radiologist, or internist seriously following the field of roentgenologic diagnosis of the heart and great vessels.

Enriching the Years. New York State Joint Legislative Committee on Problems of the Aging. Legislative document (1953), no 32. Paper. Gratis. Pp. 199, with illustrations. State Senator Thomas C. Desmond, Chairman of the Committee, 94 Broadway, Newburgh, N. Y., 1953.

This pamphlet is one of a series of reports of the New York State Joint Legislative Committee on Problems of the Aging. The committee began its work in 1947 and was the first such group in the country. It has performed a unique and immensely valuable service in behalf of the older persons of New York. Its influence, however, extends far beyond the borders of that state and into every community. The format of this report is unusually good. The booklet is printed on glossy paper in magazine style and has stiff paper covers, an abundance of photographs, a few illustrations, and a number of tables. It is in essence a compendium of 27 essays by leading authorities on various aspects of the problem of aging, preceded by an introduction by Senator Desmond and a chapter on committee recommendations. The essays concern important aspects of the problem: longevity in New York state; food for later years; school days for older persons; training of older persons through correspondence, private trade schools, and other means. The articles are well written and are interesting reading for anyone who has the slightest interest in the problems of aging. With the previously issued committee reports this pamphlet can and will stimulate sympathetic interest in, and a better understanding of, the problems of the senior citizens of our communities.

Anatomy and Surgery of Hernia. By Leo M. Zimmerman, M.D., Professor of Surgery and Co-Chairman of Department of Surgery, Chicago Medical School, and Barry J. Anson, Ph.D., Professor of Anatomy, Northwestern University Medical School, Chicago. Cloth. \$10. Pp. 374, with 204 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

A distinguished anatomist and a surgeon with an intense interest in hernia have compiled a treatise on the anatomy and surgery of hernia. The superb illustrations and careful anatomic descriptions in the legends will be familiar. The idea that gave rise to the book is sound, and the result is a real contribution to the literature on this subject. Some disjointedness is created by the change in viewpoint from chapter to chapter. Sections on inguinal, femoral, and some pelvic hernias, which make up the major portion of the book, are based on detailed anatomic dissections of the lesions. Other parts are based on more or less accepted normal anatomy and are less authoritative. Moreover, the anatomic descriptions are factual and cold; the description of operations is personal and almost impassioned. It is in this latter area that some differences of opinion may arise, because the surgeon author sets forth al-

most exclusively what he believes, from his experience, to be the proper procedures. Most surgeons today will agree with him that the Bassini operation, which involves suturing of functioning muscle fibers to a semifixed structure, is unsound. There is a curious and interesting use of dissections, in which McVay participated, to elaborate on objections to McVay's using the superior pubic ligament as a fixed structure. On the whole the surgical principles are sound, and controversy will center on details. The authors pay a heartening tribute to H. O. Marcy, whose name is often omitted from discussions of hernia but who antedated Bassini and Halsted by several years. The bibliography, particularly in connection with those chapters that are based on previous publications, is extensive. The book is printed on good paper and is logically arranged.

Roentgen-Diagnostics. Volume III: Thorax. By H. R. Schinz, W. E. Baensch, E. Friedl, and E. Uehlinger. English translation arranged and edited by James T. Case, M.D., D.M.R.E. First American edition (based on fifth German edition). Cloth, \$45. Pp. 2001-3115, with 1084 illustrations. Grune and Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

This book maintains the high standard of the first two volumes of the series. The many excellent roentgenograms help to make this volume one of the most valuable as well as voluminous contributions to roentgenologic diagnosis published in this country. The first 68 pages are devoted to a study of the normal roentgenologic appearance of the lungs. The greater portion of the volume covers thoroughly the diseases involving the thoracic contents, diaphragm, and pleura. The final section covers diseases and malformations of the heart and great vessels. All of the diseases and abnormalities are adequately shown in the illustrations. Line drawings are frequently employed to clarify changes that cannot be clearly demonstrated on the reduced reproduction.

A valuable feature of this work is the extensive bibliography, which covers all of the important and recent work in the field. The book itself is beautifully produced with clear and readable type and excellent cuts. This work has been a vast undertaking, and the publication of the fourth and fifth volumes (completing the series) is eagerly awaited. The translation from the original German is generally excellent, but occasionally sentence structure is so involved that reading is difficult. The retention and use of eponyms, such as Pfeiffer's glandular fever for infectious mononucleosis, will not aid the reader who is unfamiliar with continental terminology.

Metabolic and Toxic Diseases of the Nervous System: Proceedings of the Association, December 12 and 13, 1952. New York, N. Y. Research Publications, Association for Research in Nervous and Mental Disease, volume XXXII. Editors: H. Houston Merritt, M.D., and Clarence C. Hare, M.D. Cloth, \$10. Pp. 604, with 104 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

Each year the trustees of the Association for Research in Nervous and Mental Disease decide on a subject for the annual meeting. The current volume reports the proceedings of the meeting held in New York in December, 1952. The collected papers cover the relation of the parathyroid, pituitary, thyroid, and thymus glands to various nervous and neuromuscular diseases; the relation of adrenocortical physiology to the nervous system; the effects of high and low environmental temperatures; the role of vitamins, copper, carbohydrates, potassium, lipids, and various enzymes; neurological disorders associated with liver disease; opiate and barbiturate abstinence syndromes; drug psychoses; the physiological development of the cerebral cortex; the relation of porphyrin, creatine, and creatinine metabolism to nervous and neuromuscular diseases; and the effects of inorganic, organic (alcohol), and bacterial toxins on the nervous system. The contributors are all outstanding authorities in their respective fields. Each chapter or group of chapters ends with a discussion and a list of references. One minor criticism is that the discussions appear to have been printed as transcribed, with little or no editing, and hence contain much unnecessary padding. The illustrations are adequate; a list of members of the association is given at the end of the book; and there is an index. Because the papers are highly technical there is little in them that would be of interest to general practitioners, but for those who specialize in neurology, endocrinology, or metabolic diseases the volume is practically indispensable.

The Ergonomics Research Society: Symposium on Fatigue. Edited by W. F. Floyd and A. T. Welford. Cloth, 24s. Pp. 196, with illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1, 1953.

This book presents a number of contributions dealing with the complex problem of fatigue. It deals especially with anatomic, physiological, and psychological aspects of this problem and the challenge of fatigue to productivity. It has been published under the auspices of the Ergonomics Research Society of England, which was founded in 1949 for the purpose of bringing together anatomists, physiologists, psychologists, engineers, and others interested in the design of machinery and equipment for human use.

A distinguished group of contributors has discussed the subject of fatigue from a wide variety of approaches, including psychological criteria of fatigue; thermal factors in the environment that influence fatigue; tropical fatigue; the effects of fatigue on tremor; some effects of prolonged muscular exertion; the physiological background of fatigue; experiments on positive and negative work; a factor in postponing the onset of fatigue; physiological valuation of work in the Nykroppa Iron Works; muscular potentials as indicators of effort in visual tasks; visual fatigue with special reference to lighting; the fact and fiction of fatigue; motivation in measurements of fatigue; some practical problems of the alertness indicator; work decrement in the learning and retention of motor skills; deterioration of performance on a short-term perceptual-motor task; neglect of the surroundings in relation to fatigue decrement in output; satiation and frustration as determinants of fatigue; and the psychologist's problem in measuring fatigue. The contributing investigators from England, Denmark, Sweden, and the United States represent such fields as psychology, physiology, hygiene, military medicine, ophthalmology, and industrial health.

Certain key statements by various contributors will be of interest. Edholm concludes that "a considerable content of tropical fatigue is psychological rather than physiological," and Ellis states that "in a hot climate the onset of fatigue is facilitated, and the effects are more profound and last longer." Eagles and his associates say that "sleep deprivation leads to a diminution and lessening of fluctuation in tremor. This reflects widespread increasing muscular relaxation." Darcus concludes that it is "possible to improve the methods of work and the design of machines to reduce the effort required and to increase the output attained." Hemingway says "the mean blood flow through a rhythmically contracting muscle may be increased above the resting flow. The blood flow is increased, not during, but actually between the contractions." Asmusen indicates that "at low and moderate velocities of shortening, human muscles can do negative work at a cost of one-third to one-ninth the cost of positive work." Christensen expresses the hope that application of physiological points of view to a rationalization of work might create the best possible conditions for an increased production with a reduced strain on the workmen. Ryan states that "muscular potentials can be used on a statistical basis to reflect the relative effort involved in different tasks, even when the subject is permitted relative freedom of posture and movement." Weston defines visual fatigue as "weariness resulting from the bodily and mental exertion of seeing." Browne says that it is a fact that "prolonged application to a task produces symptoms in the subject and signs in the performance," but "it is fiction that there is a single entity called fatigue." Schwab concludes that "in the investigation of fatigue in the muscles of human beings, one can ordinarily depend upon average motivation levels to give fair examples of muscular performance under different conditions." Gagné questions "the adequacy of the present concept of inhibition in explaining completely the production of decrement in performance during the learning of motor skills." Singleton decided that "deterioration of performance was almost entirely localized in the reaction time component of the skill, the movement time remaining constant." Broadbent concludes that the main preventive of fatigue is "variety in the task stimulus," and Welford says that "disintegration of performance occurs where a 'higher' organization of a task breaks down, leaving the details without coordination or 'drive.'" All physicians and engineers interested in problems of fatigue should find this book of very great interest.

QUERIES AND MINOR NOTES

USE OF TETANUS TOXOID AFTER INJURIES

TO THE EDITOR:—*In this community the question arises as to the use of tetanus toxoid following injuries. Some physicians use the toxoid in place of the tetanus antitoxin. Please give me an opinion on these questions: Following an injury, will the use of toxoid take the place of tetanus antitoxin when toxoid has never been used previously? Will tetanus toxoid take the place of tetanus antitoxin if tetanus toxoid was used more than one year ago?*

E. E. Benoist, M.D., Natchez, Miss.

ANSWER.—1. Tetanus toxoid cannot be used as a substitute for tetanus antitoxin when tetanus toxoid has not been used previously. Toxoid induces active immunity. Depending on the materials and techniques employed, the time of appearance of reliable immunity after tetanus toxoid varies. Nevertheless, a time much longer than the average incubation period of tetanus will be required to induce a state of reliable active immunity. 2. With certain reservations, hereinafter indicated, tetanus toxoid can take the place of tetanus antitoxin when toxoid has been used as long as 10, and possibly more, years previously. The dose required to recall immunity may be small, such as 0.1 ml. of either depot or fluid tetanus toxoid, administered alone or combined with other antigens (diphtheria and/or tetanus), by the subcutaneous or intramuscular routes. As previously indicated, certain circumstances necessitate the combined use of tetanus antitoxin and tetanus toxoid: (a) delay of over 24 hours in the administration of recall doses of toxoid; (b) lesions considered very likely to be associated with tetanus of early onset (short incubation period); (c) marked general debility from any number of causes (bleeding or associated diseases of a debilitating nature), or (d) questionable status of the patient in respect to the previous administration of tetanus toxoid.

SARCOMATOUS CHANGES IN UTERINE FIBROIDS

TO THE EDITOR:—*Is it possible for malignant degeneration to occur in uterine fibroids? What are the indications for surgical treatment in the presence of uterine fibroids?*

M.D., Minnesota.

ANSWER.—It is best to discard the term "malignant degeneration," because a malignant growth is not really degeneration but just the reverse, namely, a growth of new active and destructive tissue. A sarcomatous change in uterine fibromas does occur. In fact it is the most frequent type of sarcoma seen in the uterus. It usually occurs near the center of the fibromyoma. Roughly, a malignant change occurs in about one in 200 fibromyomas. If a sarcomatous change is recognized at operation (every neoplasm should be opened at the operating table), a total hysterectomy and removal of both tubes and ovaries should be carried out. However, there is controversy concerning the treatment in cases in which the diagnosis of sarcomatous change is reported by the pathologist after an operation has been done. There are many gynecologists who do nothing in the belief that the hysterectomy is sufficient treatment. A few resort of irradiation therapy.

Generally speaking, uterine fibromyomas that are not associated with profuse menstrual periods should not be removed unless they are larger than a four months gravid uterus or the patient is infertile and is anxious to have children. In the latter instance myomectomy should be performed. Rapid growth of fibromyomas is another indication for surgery, because it may indicate malignant change. Fibromyomas larger than 10 cm. found in women who have been in the post-

menopausal period for at least two years should be removed because in nearly all instances simple fibromyomas decrease considerably in size after cessation of menstruation. Since there is only about one chance in 200 of a malignant change in fibromyomas and since these malignancies are apparently not as serious as sarcomas of the uterine muscle and uterine endometrium and blood vessels, it is not justifiable to remove all uterine fibromyomas.

SMALLPOX VACCINATION

TO THE EDITOR:—*A 3-year-old boy has been vaccinated 10 times for smallpox without a "take." Three different vaccines have been used, with all of which there have been "takes" on other children. Do you have any suggestions? I have heard of two persons who failed to have a smallpox "take" and some years later contracted smallpox.*

John A. Putnam, M.D., Carthage, Mo.

ANSWER.—As a general rule, it has been stated that the absence of a reaction to vaccine does not indicate immunity. It indicates oftener either that the vaccination was not properly performed or that the vaccine was not potent. Many physicians adopt the policy of attempting the revaccination at about three month intervals until a "take" is obtained.

NEUROSURGERY IN MULTIPLE SCLEROSIS

TO THE EDITOR:—*A 39-year-old man with moderately advanced multiple sclerosis has a scissor type of gait. He is confined to his wheel chair most of the time and whenever he attempts to walk he has a cross-legged gait. He has bilateral ankle clonus and a bilateral Babinski reflex. Clonic spasms occur during sleep in both legs, and, when he awakens in the morning, he complains of pain in the adductor group of muscles of each thigh. A neurosurgeon has suggested that the patient submit to bilateral section of the obturator nerve as a means of relieving the rigidity of the adductors. Is this a recognized procedure, and, if so, what are its disadvantages? The patient has received large doses of mephenesin (Tolserol) without benefit. I believe that, because he has so much spasticity of all the leg muscles, section of the obturator nerves would be of little help in permitting him to get along on crutches.*

M.D., Minnesota.

ANSWER.—Section of the obturator nerve is a well-established procedure that aids patients with paraplegia to walk by preventing the crossing of the legs. It is a minor operation and quite justifiable in such a patient.

TESTICULAR BIOPSY

TO THE EDITOR:—*Is it considered definitely proved that testicular biopsy is absolutely free of any danger, especially as far as the development of testicular tumors is concerned in a cryptorchid person?* H. Hinglais, M.D., Paris, France.

ANSWER.—Testicular biopsy is an innocuous procedure, devoid of any important complications either immediate or delayed. The most serious immediate complication is hematocoele, which can be avoided by careful selection of a bloodless area for incising the tunica albuginea. Postoperative pain is negligible if the tunica albuginea is not sutured. In over 2,000 biopsies, only two hematoceles resulted and these occurred in the first 100 cases. No reports have appeared on delayed complications. Operative exposure of the testis either months or years following biopsy reveals either no evidence of the former incision or an insignificant scar. In the performance of serial biopsies, tissue removed from the same spot as the previous biopsy (if that can be located) reveals no evidence of trauma. In cryptorchidism, biopsies are performed during

the course of orchidopexy. Thus far, 57 biopsies have been performed on immature testes that were exposed for orchidopexy, and 130 biopsies have subsequently been done on the same testes in order to observe their later development. The literature contains no report of malignancy nor is there known to be a single instance of unreported malignancy.

INJECTIONS OF BEE VENOM FOR ARTHRITIS

TO THE EDITOR:—A patient whom I was treating for tear duct stenosis up to 1945 was interested in bees. He was stung every once in a while and during this time never had one ache or pain of arthritis. He then moved to Wisconsin and recently began having arthritic pain. He asked a physician to inject the venom of bees, and after a few injections he was free from any rheumatic condition. As I have never heard of this therapy for arthritis, I would like your opinion.

C. Messmer, M.D., Milwaukee.

ANSWER:—Bee stings and injections of bee venom have been used in various rheumatic disorders for many years. The results, at best, can be said to have been only equivocal. A review of the literature in English since 1936 reveals that some physicians as recently as, but not since, 1942 have advocated the injection of bee venom for rheumatoid arthritis. However, other investigators found that similar results were obtained when solutions of magnesium sulfate, glucose, or foreign-protein material were injected or when physical therapy alone was employed. Most of the publications by those who favor the use of bee venom in rheumatoid arthritis merit the criticism of Kroner and associates (*Ann. Int. Med.* 11:1077-1083 [Jan.] 1938), who stated: "However, in spite of the many articles that have appeared on the use of bee venom for the treatment of rheumatism there is hardly one that presents evidence of a scientific application of this form of therapy. In most instances, the type of rheumatic disease studied is not clearly defined, the number of patients treated is small, and only generalized statements regarding the results are given." Bee venom does not appear to have any specific curative effect in rheumatoid arthritis; it is doubtful that it has any significant antirheumatic effect other than that which occasionally is seen temporarily following the injection of many irritating substances.

CAUSE OF AMENORRHEA DURING LACTATION

TO THE EDITOR:—What is the physiological basis for the amenorrhea present during lactation? M.D., Louisiana.

ANSWER:—There is still some uncertainty as to the cause of the amenorrhea that may be present during lactation. The immediate factor is rather generally accepted to be the suppression of the pituitary gonadotropin. This inhibition probably comes from the pituitary lactogenic hormone, since no evidence has ever been adduced to support the older hypothesis that the lactating breast produces a hormone responsible for inhibition of ovarian function. It is now well established that menstruation reasserts itself at varying periods after parturition, even if lactation is continued; and that the earlier cycles are often anovulatory, as shown by a number of authors (Topkins, P.: *Am. J. Obst. & Gynec.* 45:48, 1943; Lass, P. M.; Smelser, J., and Kurzrok, R.: *Endocrinology* 23:39, 1938).

RADIATION FROM HIGH TENSION WIRE

TO THE EDITOR:—Is there any evidence that radiation of electricity from a very high tension wire could cause impairment of health of those exposed to it?

John T. Bate, M.D., Louisville, Ky.

ANSWER:—There is no evidence that electromagnetic radiation from a high tension wire could, under any ordinary conditions, cause impairment of health of those exposed to them, unless, of course, a person came in direct contact with the wire so that current flowed through his body to the ground or to some other object of a different electrical potential. The electromagnetic waves from high tension wires could have only the production of heat as their chief effect on the human subject. The field strength is so low that it is doubtful that any perceptible heating of body tissues would occur.

USE OF OXYTOCICS

TO THE EDITOR:—Kindly advise as to the current consensus of use of oxytocics, first in normal vaginal delivery and second in cesarean section.

R. E. Mailliard, M.D., Storm Lake, Iowa

ANSWER:—The majority of obstetricians today use oxytocics in both vaginal deliveries and cesarean sections. The difference of opinion is mainly over the proper time to use them. It has been shown over the years that the use of oxytocics saves blood. Some use pituitary products (preferably those low in pressor activity) with the delivery of the head, believing that the placenta separates quickly and that the uterus therefore contracts down better, saving blood. With this method the placenta usually follows the delivery of the baby by one to two minutes. Others will not give any oxytocics until after the delivery of the placenta but at this point give either the pituitary or ergot type of drug or both. Probably the majority of obstetricians give ergot preparations for from one to three days following delivery.

There is apparently some danger in giving pituitary products while cyclopropane is being used as an anesthetic, and also some cases of so-called allergic reactions have apparently occurred even in the absence of anesthesia.

TREATMENT OF VENEREAL WARTS

TO THE EDITOR:—In the Aug. 15, 1953, *JOURNAL*, page 1581, was a comment on venereal warts that recommended that podophyllin resin, a dusting powder of thymol iodide, or potassium permanganate in dilute solution be used.

In THE *JOURNAL* of July 11, 1942, page 874, was a report under the heading of "Radium Therapy for Vulvar Condylomas." These lesions on women have been quite successfully treated with small doses of radium by local application. It was felt that radium irradiation was more limited and localized than x-irradiation. It was shown that 100 mg. hours of radium should be sufficient for a 4 sq. cm. area. It was suggested that smaller doses be used initially and applications repeated if necessary. This suggestion is added since the use of x-ray and radium irradiation was omitted in the answer. Admittedly these comments are offered only from the viewpoint of an obstetrician and gynecologist.

H. C. Hesseltine, M.D.

University of Chicago

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IRRITABLE BOWEL SYNDROME

TO THE EDITOR:—The query on "Irritable Bowel Syndrome" in THE *JOURNAL*, Aug. 15, 1953, page 1585, was of interest to me. It might be useful to the questioner to consider that intestinal symptoms can be caused not only by food but by irritating substances that enter by the respiratory route. As an illustration, an older woman had very bizarre intestinal symptoms; a diagnosis of psychoneurosis had been made, but the symptoms were proved to be caused by her use of a down pillow. When all the feathers were discarded, there were no more symptoms. Somewhat similarly, she had a much milder reaction to bed linen that was laundered at a public laundry. The use of detergents instead of soap can apparently contribute to such symptoms.

A. E. Taft, M.D.
Haverford, Pa.

UNEXPLAINED SWELLINGS

TO THE EDITOR:—The case described by the consultant in answer to the query on "Unexplained Swellings" in the Oct. 17, 1953, issue of THE *JOURNAL* bears a striking resemblance to one in which I was consulted several years back. This case proved puzzling until it was suspected, and later proved, that the edema was self-induced by use of a ligature.

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ORGANIZATION OF THE DEPARTMENT OF SURGICAL PATHOLOGY

Edwin F. Hirsch, M.D., Chicago

Forty years ago, if the conditions prevailing in Chicago are taken as representative of those in other large medical centers, the practice of surgical pathology did not exist. A few of the tissues removed by surgeons were taken to the pathology departments of medical schools and the professor of pathology was approached with the statement that here was something of unusual interest. Had he suggested a small fee for this service, the professor would have been regarded as ungrateful of a privilege. He, of course, was most interested in pathological material obtained through his own necropsy examinations, and he had little concern for the tissues that the surgeon removed. Later, the surgeon himself, realizing that much and sometimes significant diagnostic information was obtained by the microscopic examination of a surgically removed tissue, organized a small laboratory for preparing tissue sections. He or his assistants interpreted these preparations. Next, laboratories in hospitals took over this function and pathologists were employed to supervise the clinical laboratories, examine the tissues removed at surgery, and make the postmortem examinations.

If 1922 is chosen as the beginning of the second decade of the last 40 year span, in that year the laboratory at St. Luke's Hospital examined 1,137 tissues removed at surgery and 1,272 tonsils. At that time the examination by the laboratory of all tissues removed surgically had been a routine practice for several years. These figures indicate that 52.3% of the surgical operations in that year were tonsillectomies. For the year 1932, the beginning of the third decade, the number of tissues removed at surgery was 2,667 and of tonsils 1,282. The tonsillectomies accordingly constituted 32.5% of the total surgical operations. The totals for 1942 were, respectively, 4,813 and 637, and the percentage of the tonsillectomies had decreased to 11.6% of the total surgery; and in 1952 these surgical procedures numbered 7,189 and 251, with the number of tonsillectomies only 3.3% of the total surgery. The increase in the number of tissue examinations in each of the last two decades does not result from the broader application of a routine practice but reflects the greater utilization of biopsy examinations in diag-

nosis, especially in the field of cancer, and also the development of specialized practices in surgery, notably bronchology.

LABORATORY PROCEDURE

The processing of tissues is the duty, of course, of only one of the departments of a clinical laboratory. The segregation of this work from that of other departments, especially when many tissues are examined, reduces distraction and the attendant chances of error. Any system to preserve the identity of a tissue removed at surgery for examination begins in the operating room. Large tissues are wrapped in wax paper and then a requisition is fastened, giving the patient's name, the bed location, the date, the attending physician, and other pertinent data. Small particles or pieces of tissue go directly into a glass container with a fixing solution, preferably Zenker's solution with acetic acid, also suitably identified. The operating room personnel sends to the laboratory, the tissues and a large ledger book in which are entered, according to date, the name of the patient, the tissue, and the surgeon. The tissue technician in the laboratory signs and records in the proper column in the book the time of arrival of each tissue.

Tissues arriving during the day are collected in a refrigerator or other suitable place and at a scheduled hour, preferably late in the afternoon, the pathologist makes the gross examinations and selects the portions of tissues to be fixed for sections. Each requisition is numbered consecutively during a year, beginning with the first day of January and ending Dec. 31. The tissue and its record then receive a number of a year. A small piece of paper with the proper number marked in pencil is placed with the tissues being fixed in a container. This slip is transferred with the tissues as they pass through the various solutions for dehydration, clearing, and paraffin infiltration.

Pressure for the prompt diagnosis of a tissue obtained at biopsy confronts every pathologist. A small piece of tissue can be processed readily in 24 hours or less. When many small biopsy specimens requiring 24 hour diagnostic service come to the laboratory, the pathologist has a larger problem, the processing of the large blocks of

tissue that require more time and the processing of the small pieces within a 24 hour schedule. My comments concern chiefly the second group, because these tissues need a special technical procedure. Moreover, the method herein described can be used for the cytological examination of various fluids.

METHODS OF PROCESSING TISSUES

Tissues for sectioning are processed usually by transfer from one liquid into another with instruments or a mechanical device. Besides the "forceps-pick-up" method for moving the small pieces, various carrying devices have been proposed, such as collecting the particles on filter paper, lens paper, or gauze and then passing the gauze or paper through the reagents. A special metal centrifuge tube with a screw-out tip for collecting small particles of tissues has been described. A simple method devised in the laboratory at St. Luke's Hospital to process and to conserve the small biopsy specimens uses the principle of centrifugation, bringing the reagents to the tissues rather than the tissues to the reagents. It is advantageous in biopsies of bronchial tissues and aspirations, with fluids of all kinds, and for the cytological examination of cervical and uterine fluids or tissues.

Ordinary 15 ml. centrifuge tubes of good quality glass with a cork or rubber stopper, or, if required, cotton stoppered and sterilized, are used. The small tissues removed by the surgeon or bronchologist are transferred directly into such a tube. A small amount of isotonic sodium chloride solution can be placed in the tube to help release the tissues from the jaws of the instrument used to remove them at biopsy. Zenker's solution is then added, the tube is stoppered, and an adhesive strip bearing the patient's name is fastened to the outside. The bronchologist at St. Luke's Hospital, Dr. Paul Holinger, has had his bronchoscopy instruments constructed so that a centrifuge tube for collecting fluids by bronchial aspiration can be attached directly to the instrument. Zenker's solution is then added, the tube is stoppered, labeled, and sent to the laboratory. Fluids of all kinds are processed in this way. Those with sediments are centrifuged before fixation, and the sediment is then fixed; those without sediment are precipitated by adding Zenker's solution. With a small curet, superficial tissues of the cervix, the cervical canal, or pools of vaginal fluids are removed or collected, transferred to a centrifuge tube, and then fixed in Zenker's solution. The processing of these tissues in the laboratory is continued by centrifuging, decanting reagent fluids, and adding new ones. After dehydration with alcohol, toluene or xylene or other suitable reagent is used for clearing and, finally, melted paraffin is added and the tube is placed in the paraffin oven. The paraffin can be changed as required. When the tube with paraffin is removed finally from the incubator, a copper wire loop is hung over the lip of the tube so that it dips into the liquid paraffin. After the paraffin is solid, the tube is gently warmed in water and the entire paraffin mass, molded to the shape of the tube, lifts out with a slight pull on the copper wire. The tip portion containing the tissues or cells for examination is cut off horizontally

and embedded in a small amount of melted paraffin. This block containing the tissues or sediments is cut with a rotary microtome and ribbons of sections are mounted and stained. By this method all small biopsy specimens are sectioned; the procedure has met in hospital practice the requirements of cytological studies of all kinds of fluids and secretions. A method of this kind has the advantages of concentration instead of dispersion of microscopic materials; it enables the pathologist himself to make a large number of cytological examinations in instances in which screening by the smear and oil immersion examination method would require a trained technician; it permits the application by the pathologist of his experience and training to the evaluation of all cell masses found rather than to toss away these standards for a method that acceptedly is a screening procedure; and the pathologist also has a chance to recognize tissue lesions other than those cancerous.

Tissues removed at surgery after gross examination and description can be preserved in deep-freeze units and in preserving fluids. There are limits of time and space to these procedures. The paraffin blocks of tissue can be stored for many years in space outside of the laboratory. Prepared slides are filed according to number and year in cabinets bought or constructed for this purpose.

LABORATORY RECORDS

The final report to the clinical record and to the attending physician generally is more than a diagnosis. It should include adequate gross and histological descriptions as well as the pathological diagnosis. Chief problem of the pathologist is not handling the copies that leave the laboratory but rather devising a system for keeping the original copies accessible and in order. Loose filing cards are unsatisfactory. During my years at St. Luke's Hospital I have used a sheet of good quality paper, 9½ in. by 8½ in., on which is printed items such as name, date, attending physician, room or ward number, and diagnosis and a blank sheet that is used for descriptions longer than those that can be typed on both sides of the first sheet; blank sheets are also used for mounting sketches, drawings, photographs, photomicrographs, and other addenda in a record. Any other size of paper sheets or printed items can be used; the size mentioned is satisfactory for current filing purposes in a vertical file according to number and later for binding into books. The tissue reports are typed with carbon copies on regular typewriting paper. The original copy is retained for the record files in the laboratory, a copy is added to the patient's clinical record, and another is sent to the attending physician. A temporary index of patients' names, with assigned tissue numbers, is made on small sheets of paper and alphabetically arranged in an index file. These slips placed in alphabetic sequence are used later to type the permanent name index of each volume of tissue reports. Six hundred surgical tissue reports with included sketches, photographs, and photomicrographs form a bulk convenient to bind into a volume. Each volume has an alphabetically arranged index of the names of patients, with assigned tissue numbers, and a simple, cross-

indexed, alphabetically arranged list of diagnoses reported in the volume. With practice these indexes are prepared quickly.

USE OF PHOTOGRAPHY

Photography has been used in many fields of medicine and is especially useful in pathological anatomy. Photographs in black and white or in color can serve several purposes: (1) to supplement a tissue report or a necropsy record; (2) to illustrate lesions in discussion with student, intern, resident, and attending staff groups; (3) to collect, file, and display in a photographic museum of pathology; (4) to organize into exhibits for hospital corridors and elsewhere; and (5) to provide illustrations for publications or texts. A photograph approximates the appearance of a tissue, the black and white medium expressing this in shades of the dark and the light and the colored picture by contrasts of color. A better result is sometimes obtained with the shades of gray and sometimes with the colors. The preparation of a tissue for photographic purposes is the first important step. No photographer can reproduce in a photograph more than the tissue contains. It must be opened or cut to expose clearly the lesion or structures to be photographed. The knives and other instruments used must be sharp to make smooth surfaces. After the results had been disappointing in photographing unfixed tissues, tissues immersed in water and photographed through glass, the more reliable and satisfactory procedure of tissue fixation with solutions for preserving color was adopted at St. Luke's Hospital. The elimination of high lights and the reproduction of details and color are important. Prompt fixation of the tissues in fluids for preserving their color after suitable preparation of the lesion accomplishes this. Tissues carried through the Kaiserling solutions no. 1 and no. 2 or Jores solution no. 1 are suitable for photographing in black and white or in color. A box built with an illuminated blue-green background and with corner supports for a clear plate of glass placed at a higher level and on which the tissues are photographed is required. Skill and experience in the art of photography are as essential in tissue photography as they are with other subject material. Doubtless the preservation of gross tissues in museum jars for teaching purposes will continue but not in the volume that prevailed before the present level of photographic achievement was reached. Photographs offer many advantages and uses over the preserved specimens.

PRESENTATION OF STAFF CONFERENCES

Pathologists in hospitals are expected to present clinical-pathological conferences for the attendant and resident staff. The attendance at these conferences and the interest displayed in them are determined by the quality of material offered. Needless to say, many specialists in the various branches of medical practice have been trained in centers in which these conferences have been conducted at high levels. They expect the same high quality from the pathologist who serves the hospital in which they practice. The pathological material presented in these conferences is not offered to one individual or several but rather to large groups. For effective demon-

stration the use of screen projection is required. Printed and typewritten material, photographs, and transparencies can be projected onto a large screen with opaque object and lantern slide projectors. Photographs mounted on 8½ in. by 10 in. cards can be collected according to systems in files and indexed. The black and white and color transparencies for projection purposes are also filed and indexed. These collections and the files of tissue reports and necropsy records, all in a numerical system, become a museum of pathology. Sets of histological preparations, as unknowns or with indexes arranged according to the specialties and with the same system of numbering, provide training material in pathological histology. Reports of tissues removed at surgery or necropsy records are available for consultation.

With these arrangements and the practice of keeping paraffin blocks of surgical and necropsy specimens in storage indefinitely and the Zenker-fixed and formaldehyde-fixed necropsy material for a reasonable time, the hospital pathologist is able to meet practically all of the demands of his tissue work.

PROBLEMS IN TISSUE DIAGNOSIS

Every pathologist practicing his specialty in whatever circumstance is confronted with problems in tissue diagnosis. What is the tissue lesion? Is it inflammatory or is it neoplastic? No one has a mystic ball out of which he may conjure up the answer, and I do not believe that any pathologist has a God-given talent for tissue diagnosis beyond the characteristics of ability to observe details and to interpret their significance. Training the eyes to see and the mind to think are the important ingredients in this work. The final diagnosis of a tissue examination has the elements of gross features and microscopic details, either one dominant or both of relatively equal value. Gross features unless changed by handling, desiccation, or autolysis remain constant. The choice of tissues for microscopic examination, however, and the final product in the sections are variables. Choice of material or the sampling must be adequate. The one technical defect that seems to me the greatest handicap to pathologists in tissue diagnosis and for which the pathologist himself is responsible is the poor quality of his histological preparations. Every athlete trims his load to the minimum and seeks out the greatest advantages for demonstrating his skill in competition. Why should the pathologist do otherwise? The quality of the final section is determined by tissue fixation, the kind of fixative and the time the tissues are fixed, the care of embedding, the precision in sectioning and in the mounting of sections, and staining. How many of us can give constructive suggestions to a tissue technician on the basis of actual personal training and experience? Who realizes in tissue diagnosis that a whole battery of different stains, many of them more specifically designed for the stroma of tissues than for epithelium, affords little more diagnostic information than confirmation of a good histological preparation stained well with the simple hematoxylin and eosin stains? I am also one of those who think that a pathologist to be skillful in diagnosis must continually

check his observations and conclusions, so far as is possible, by the patient's progress and especially by necropsy examinations. Who among us has the zeal and interest to follow outside of his laboratory—in the hospital, across the street, across the city, to another city, or halfway across the continent—a controversial tissue diagnosis and learn by necropsy the validity or falseness of his conclusions. The discipline can be comforting as well as confirming; it can be starkly revealing and teach an unforgettable lesson. Both of these can be of great benefit to the pathologist. Good principles of practice apply in surgical pathology just as they do in the other specialties of medicine.

Among the sharpest critics of pathologists are his professional associates. He serves them as well as the patients. When the results of a tissue examination agree with the clinician's opinion of the disorder, there is no difficulty. With disagreement, there can be difficulty, and under these circumstances emotional factors enter. These personal relations have many aspects and to reduce their solution to a single formula is not possible because the tension of the emotional factor on either or both sides can be small or it may reach the "explosion" level. I have only suggestions to offer: 1. Try to keep the discussion and thinking at the adult level; a simple reasonable question helps to get the discussion into this channel. 2. Silence is often golden; a good listener can release a lot of pressure. 3. Have your facts so collected and organized that you can present them clearly in a way that even he who runs may read. 4. A bit of humor often can dispel a tense situation.

IMPORTANCE OF GOOD PUBLIC RELATIONS

The medical profession is always confronted with the problem of good public relations. These discussions are carried on at the local, at the state, and at the national levels. Pathologists have been urged to participate in and actively support the interests of their local medical society and to contribute the elements of their specialty to the improvement of the community in which they practice. In agriculture, the method of continuous crop cultivation without plowing back necessary ingredients to maintain and improve growth potentials is indeed a short-sighted policy leading to soil depletion. For another example, in various states, legislative power is urged to revise and modernize the archaic coroner's system and thereby establish the medical examiner system. The medical examiner system provides that a physician with special training in pathology, in brief a pathologist, should make the necropsy examinations. Recently during the discussions of such a revision of the Illinois statute at the legislative level, the pertinent question was raised whether the number and distribution of pathologists in the state are sufficient to meet the requirements of such a law. There seemed to be some question about this coverage. Then a factor not even suspected appeared. A coroner, serving in a large metropolitan area in the state, reported that he was unable to get pathologists to make his post-mortem examinations despite a willingness to pay a sizeable fee for this service. The reason given by the pathologists in his community was: "I am too busy." Judged by

fair economic standards, the income of these physicians is adequate and in an amount that justifies a definite professional contribution toward improving the practice of medicine in that community. When a pathologist fails to meet the responsibilities of his specialty in his community, poor public relations arise between himself and his professional associates and with the laity as well.

A program of improving work relations between the embalmers, the funeral directors, the hospital administrators, and the pathologists is under discussion in the Chicago metropolitan area so that certain forms of resistance against obtaining permission for necropsies can be eliminated. If specific examples were cited of the undue procrastination of lay employees and particularly of professional personnel in meeting their responsibilities at hospitals, most of us would feel that public relations could be improved by the pathologists. Nothing helps so much to dissolve these obstructions to a better level of practice of pathology than understanding and courtesy.

COMMENT

Many of these comments concern only principles of practice in surgical pathology and do not touch on specific tissue diagnosis. However, abilities in the latter develop through the application of principles by which experience in observation and correlation accumulates. Any medium that widens these basic elements increases the body of factual data, which the pathologist uses in meeting his diagnostic problems. I have remarked many times to associates and students that anybody can diagnose abnormalities of the "easy" tissues, but the reputation of a pathologist is determined by his ability to evaluate correctly the more difficult diagnostic problems.

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Congenital Heart Disease.—The diagnostic examination of the usual case of congenital heart disease requires radiographic and fluoroscopic studies, together with a clinical examination by a physician experienced in dealing with cardiac anomalies. Cardiac catheterization, angiocardiology and aortography are reserved for cases in which the diagnosis is in doubt. The physiologist, with his specialized knowledge of circulatory dynamics, may be particularly helpful in the study of such cases. The severe degree of polycythemia which is often associated with cyanotic heart disease is prone to cause cerebral thrombosis. Hemoconcentration should therefore be avoided during the preoperative and postoperative periods and during acute febrile illnesses by maintaining adequate fluid intake. The cyanotic child must be hydrated to the precise degree which will prevent vascular thrombosis, but which will not overload the failing circulation.

Digitalis is not ordinarily used in the preoperative preparation of these patients with congenital heart disease except in the presence of overt myocardial failure. Because of the susceptibility of such patients to bacterial endocarditis, antibiotics are begun on the day preceding operation and continued for one week, or until the patient is afebrile. Despite the existence of multiple potential avenues of infection at the time of surgery, our incidence of bacterial endocarditis following operations for the tetralogy of Fallot has been remarkably low—about 2%. Most cases respond favorably to penicillin therapy. It is particularly important to give antibiotics to patients with coarctation of the aorta because infection at the suture line is usually a fatal complication.—J. V. Maloney Jr., M.D., and A. Blalock, M.D., *Problems in Cardiovascular Surgery, Annals of Internal Medicine*, January, 1954.

PEPTIC ESOPHAGITIS WITH DUODENAL OR GASTRIC ULCER

Asher Winkelstein, M.D., Bernard S. Wolf, M.D., Max L. Som, M.D.

and

Richard H. Marshak, M.D., New York

Esophagitis is probably the commonest disease of the esophagus.¹ There are many varieties of esophagitis: acute, subacute, and chronic, with a wide variety of etiological agents. Early in the 1930's, we became interested in one special group of these cases, those of peptic esophagitis. In 1934, one of us (A. W.) discussed before the American Medical Association a new clinical entity, peptic esophagitis, previously undescribed.² The association of this lower esophageal lesion with hyperchlorhydria and peptic ulcer of the duodenum or stomach led to the idea that these cases were peptic in origin, i. e., they were due to the action of pepsin and hydrochloric acid on a susceptible mucosa. At the same time, Hamperl, the Viennese pathologist, delivered a paper before the Deutschen Pathologischen Gesellschaft entitled "Peptische Ösophagitis" in which he described the pathological features of a group of cases with an erosive, stenosing inflammation of the lower esophagus.³ He stated that the early histological lesions, that is, necrosis of the surface epithelium with a separation of the superficial layers from the deeper layers of the mucosa by a fibrinoid or hyaline zone with polynuclear infiltration and hypertrophy of the muscularis mucosae, were characteristically those of peptic inflammation. Since these two early descriptions, several interesting papers on this subject have appeared in the literature.⁴ It is the purpose of this communication to describe a group of 20 cases diagnosed as this type of peptic esophagitis. It is necessary at this point to discuss the classification of peptic esophagitis, so that this special group may be demarcated clearly from the other groups of patients in whom the disease may also be peptic in origin.

Other types of esophagitis in which peptic activity (hydrochloric acid and pepsin) probably plays a prominent role are (1) esophagitis with marginal ulceration at the cardia secondary to the hiatus hernias, associated with a short esophagus (studied by Wolf and others⁵); (2) esophagitis due to severe repeated vomiting, such as occurs not infrequently after abdominal operations; (3) esophagitis due to prolonged esophageal intubation or frequent gastric lavages; (4) esophagitis secondary to operations in which the esophagus is anastomosed to the stomach (seen not infrequently after the Heyrovsky operation for cardiospasm); and (5) the solitary peptic ulcer of the lower esophagus, which may or may not be the same as the first category, or perhaps may be associated in some cases with ectopic gastric secretory tissue. These categories will not be discussed in this paper, although they are of considerable importance and will be presented elsewhere.

CLINICAL FEATURES

Apparently this disease is uncommon; however, Chevalier Jackson⁶ has pointed out that esophagoscopies are usually performed only when there is an important indi-

cation. It is probable that in patients with gastric or duodenal ulcer who have severe heartburn and acid regurgitation evidence of a mild esophagitis would be revealed if esophagoscopy with biopsy were employed in the study. Our material includes 20 cases of esophagitis with characteristic clinical, radiographic, endoscopic, and pathological features. Eleven patients were over 60 years of age, three were in the 50's, five were in the 40's, and one was in the 30's. This seems to be a disease of older persons. There were 19 men and one woman. This is an overwhelming preponderance of men.

Symptoms.—The symptoms were dysphagia (in 16 patients), heartburn (6 patients), regurgitation and/or vomiting (7 patients), substernal pain (7 patients), and loss of weight (10 patients), and hemorrhage. Dysphagia was the first and most prominent symptom in 17 of the 20 cases. The dysphagia first manifested itself as difficulty in swallowing solids. Later even liquids offered difficulties. In one case, complete aphagia occurred. In three cases heartburn preceded the dysphagia. Regurgitation or vomiting of sour fluid with or without food was a common symptom. Lower substernal pain on swallowing, without radiation to the back, was noted occasionally. Dysphagia seems to be the most constant and important symptom of a fully established peptic esophagitis. Whether heartburn, regurgitation, and substernal pain alone, without dysphagia, indicate a mild peptic esophagitis requires further study. A free acidity over 40 clinical units was chosen arbitrarily as evidence of hyperchlorhydria. This occurred in 85% of the cases. Three patients had a gastric acidity of 20 to 40 clinical units of free hydrochloric acid, 10 patients had an acidity of 40 to 80 units, and 7 had an acidity over 80 units. This finding may, of course, have etiological significance.

Complications.—The chief complications were stenosis, hemorrhage, and perforation. 1. Stenosis occurred in nine cases and was diagnosed by a combination of

From the gastroenterological and radiological departments of the Mount Sinai Hospital.

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1. Vinson, P. P., and Butt, H. R.: Esophagitis: I. Anatomy and Physiology and a Review of the Literature, *Arch. Otolaryng.* **23**: 391-413 (April) 1936.

2. Winkelstein, A.: Peptic Esophagitis: New Clinical Entity, *J. A. M. A.* **104**: 906-909 (March 16) 1935.

3. Hamperl, H.: Peptische Ösophagitis, *Verhandl. deutsch. path. Gesellsch.* **27**: 208-215, 1934.

4. Bartels, E. C.: Acute Ulcerative Esophagitis: Pathologic and Clinical Study of 82 Cases Observed at Necropsy, *Arch. Path.* **20**: 369-378 (Sept.) 1935. Benedict, E. B., and Sweet, R. H.: Benign Stricture of Esophagus with Special Reference to Esophagitis, Hiatus Hernia, Esophageal Ulcer, and Duodenal Ulcer, *Gastroenterology* **11**: 618-628 (Nov.) 1948. Vinson, P. P., and Butt, H. R.: Esophagitis: Clinical Study, *J. A. M. A.* **106**: 994-996 (March 21) 1936. Barrett, N. R.: Chronic Peptic Ulcer of Oesophagus and "Oesophagitis," *Brit. J. Surg.* **38**: 175-182 (Oct.) 1950.

5. Wolf, B. S.; Marshak, R., and Som, M. L.: Short Esophagus with Esophagogastric or Marginal Ulceration, *Radiology* **61**: 473-494 (Oct.) 1953.

6. Jackson, C., in discussion on Winkelstein, A.: Peptic Esophagitis: New Clinical Entity, *J. A. M. A.* **104**: 906-909 (March 16) 1935.

symptoms (dysphagia and regurgitation), radiographic features (marked narrowing of the esophagus and some delay of the passage of barium into the stomach), and esophagoscopy (observations of swelling and narrowing and difficulty in passing the instrument through the narrow lower esophagus into the stomach). The role of inflammatory swelling, spasm, and fibrous stricture in the production of the stenosis could be determined accu-

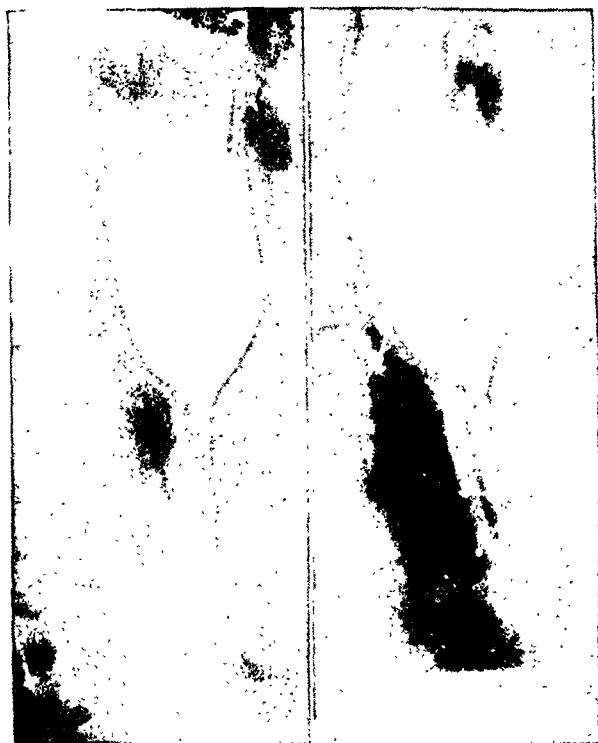


Fig. 1.—Marked stenosis of the lower half of the esophagus with moderate dilatation above.

ately only by a study of resected specimens or postmortem material. It is probable that all three factors are involved. Fibrous stenosing esophagitis undoubtedly occurs in the late stages of the severe cases. 2. Massive hemorrhage occurred in four cases. In three it took place after the onset of dysphagia. In all cases it took the form of hematemesis. It therefore seems probable, although not proved, that the bleeding came from the esophagus rather than from the duodenal or gastric ulcer. In any general study of hematemesis, peptic esophagitis should be included as a possible cause. 3. Perforation occurred in one case; the perforation was found at the postmortem examination in a small hiatus hernia immediately below the area of stenotic peptic esophagitis (case 3). We have not seen a perforation in the stenosed portion of the esophagus.

Previous Operations.—Four patients had had previous operations for duodenal ulcer. One of these had had an operation for closure of a perforation, two had had gastroenterostomies, and one had had a subtotal gastrectomy. The symptoms of peptic esophagitis set in after the gastroenterostomy in one case and after the subtotal gastrectomy in another; therefore, it is probable that the operative procedures played a role in these two cases, possibly by furthering reflux.

Association with Ulcer and Hernia.—Fifteen patients had a coexistent duodenal ulcer and two had gastric ulcers. A gastric ulcer in one patient and a duodenal ulcer in another developed at a later date. One patient had a previous solitary peptic ulcer of the esophagus (case 4). In five cases a small hiatus hernia was found. These hernias are probably secondary, due to traction by the inflamed esophagus, as is evidenced by one case in which a hiatus hernia was not present before the esophagitis appeared, but appeared after the esophagitis was well established (case 3). In one case a larger hiatus hernia that may have been due to a preexisting short esophagus was revealed. Paraesophageal hiatus hernias were not seen in this series. As a rule, these are not associated with peptic esophagitis.

Association with Pyloric Obstruction.—It has been suggested⁷ that peptic esophagitis is prone to occur in patients with pyloric obstruction. A review of our cases with this in mind revealed the presence of pyloric obstruction before the onset of the dysphagia in only one case. It seems a somewhat surprising fact that peptic esophagitis is so rarely encountered, at least clinically, in large series of patients with pyloric obstruction due to juxtapyloric peptic ulcer.

RADIOGRAPHIC FEATURES

The roentgenologic findings are essentially of two varieties: changes in distensibility or narrowing of the lower third of the esophagus and changes in the mucosal pat-

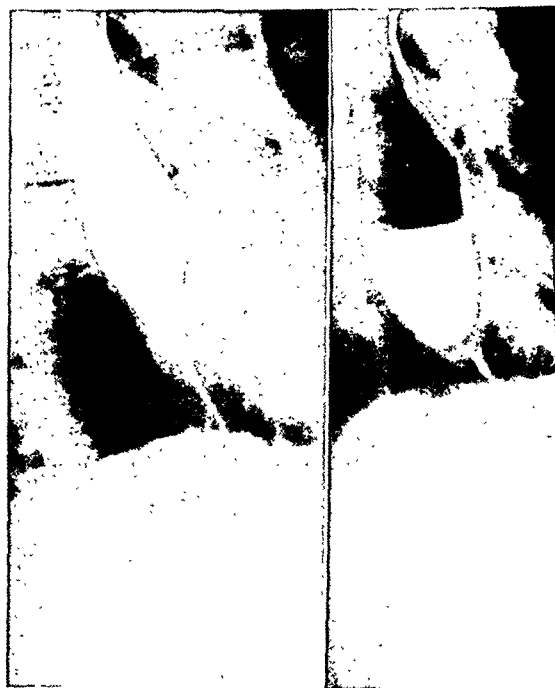


Fig. 2.—Marked stenosis of lower third of the esophagus simulating the rat tail deformity of carcinoma in the vertical position (right).

tern (fig. 1). In the severe cases the lack of distensibility may be so marked as to produce a long segment of considerable narrowing involving the lower third of the esophagus (fig. 2). The junction between the moderately dilated esophagus above and the narrowed portion below is gradual and symmetrical. The mucosal pattern throughout the narrowed segment is distorted and may have a

7. Palmer, E. D.: *The Esophagus and Its Diseases*, New York, Paul B. Hoeber, Inc., 1952.

hazy irregular appearance. Discrete projecting ulcer craters are not seen; however, the margins of the narrowed segment may show a fine serration. Coarser irregularities are not common. The involved segment usually shows no evidence of peristaltic activity. Slight changes in caliber on repeated examinations may be noted. In the dilated segment above the involved area, there may be small irregular transitory contractions. In the type of case associated with prolonged peptic esophagitis, a very small tent-like traction hiatus hernia may be seen. This occurred in five of our cases.

In contrast to the severe cases of peptic esophagitis described above, persons with minimum inflammatory changes show considerably less striking findings on the roentgenologic examination. The failure of normal distensibility of the lower third of the esophagus may be seen only after the examination of numerous films, including those with the patient in the erect position. It can then be noted that this portion of the esophagus does not dilate as much as would be anticipated normally. Instead, when maximally dilated, a tubular cylindrical structure with parallel side walls is visualized (fig. 3). Within this segment the contours of the involved portion may show a fuzziness or a fine irregularity, and the mucosal pattern again cannot be clearly delineated. When partially empty, this segment may show irregular tertiary contractions. A phrenic ampulla is not seen. There is no significant delay in the passage of the thin barium mixture through this segment, although there may be some delay in the passage of the barium mixture from the esophagus into the stomach. Prompt regurgitation of barium was seen in two cases. Careful studies of this transcardial reflux are not available for the entire series. The differential diagnosis from marginal or peptic ulceration above a large hiatus hernia is not difficult. Marginal ulceration immediately above a large hiatus hernia associated with a short esophagus may be differentiated from the peptic esophagitis associated with duodenal or gastric ulcer by the following radiographic findings in cases of marginal ulceration. 1. The esophagus is short. 2. The area of narrowing in the lowermost end of the esophagus is short (1 cm. usually). 3. The esophagus above this area is pliable. 4. A slit-like ulcer crater or an ulcer patch may be identified immediately proximal to the cardia. 5. Transcardial reflux is marked and prompt. The differentiation from cardiospasm is usually simple radiographically. It may also be readily accomplished in most cases of carcinoma; however, in a small number of cases, differentiation cannot be made radiographically, and esophagoscopy with biopsy is then necessary.

PATHOLOGY

Gross Pathology.—The appearances on esophagoscopy are a marked edema and congestion of the affected mucous membrane. This usually involves a long segment occupying the lower half or third of the esophagus but occasionally may spread upward to involve the entire esophagus to a lesser degree. Multiple small superficial ulcerations may be seen on the surface of irregular folds. Occasionally, a larger narrow area of flat ulceration runs longitudinally immediately above the cardia on the posterior wall. When the necrotic membrane is removed, a denuded area with an intensely red granular base be-

comes visible. Small nodular excrescences or a diffuse granular appearance may be present. In addition, there may be adherent white exudates in small patches or larger plaques that are readily removed by suction, exposing an edematous mucosa. Rarely, small petechiae have been observed. There is marked narrowing of the lumen in the lower esophagus that usually can be traversed by the esophagoscope, since the narrowing is most often due to spasm. In advanced cases, however, impassable organic stenosis due to fibrous stricture formation may be encountered that requires repeated dilatations. In the early cases, the cardia seems competent, and gastric reflux is not seen. Reflux has been observed in a few cases of long duration in which a fibrous replacement of the cardia has occurred.

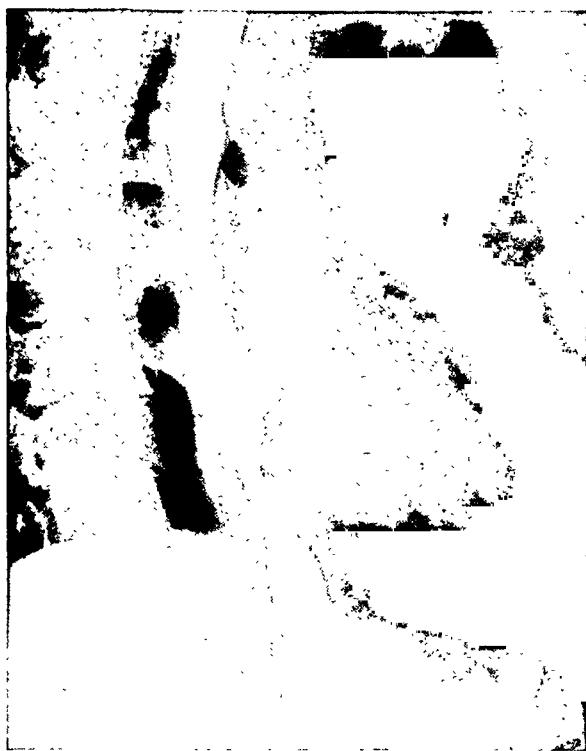


Fig. 3.—Earlier stage. Moderate narrowing of lower half of the esophagus with irregular edges and hazy mucosa with a small traction hiatus hernia.

Microscopic Pathology.—The microscopic features have been presented in considerable detail by Hamperl.³ He mentions as early lesions (a) epithelial necrosis, (b) epithelial hyperplasia, (c) a hyaline mucosal zone splitting the superficial epithelial layer, (d) polynuclear infiltration, and (e) hypertrophy of the muscularis mucosae. These changes are generally accepted by pathologists as evidence of peptic inflammation, that is, inflammation due to the destructive action of hydrochloric acid and pepsin on a susceptible mucosa, and form, perhaps the best diagnostic criteria of peptic esophagitis (fig. 4). In the advanced stage of the disease one sees petechial hemorrhages, erosions, infiltrations, and epithelial proliferation. Finally, fibrosis and stenosis are seen. The erosions, as a rule, do not penetrate through the muscularis mucosae. This diffuse, superficial ulceration seen in peptic esophagitis does not, in our experience,

eventuate in the deep, circumscribed solitary peptic ulcer of the lower esophagus. It should be stressed that, as a given case becomes chronic, a nonspecific type of esophagitis occasionally associated with leukoplakia may be superimposed, probably as a result of secondary traumatic and infectious agents.

THERAPY

Medical Therapy.—All of these patients were given the conventional Sippy type of therapy with anticholinergic drugs, including methantheline (Banthine) bromide in some cases, and alkalis. Six patients were treated with the continuous intraesophageal milk-soda drip therapy.⁸ Mechanical dilatation was employed in six cases. This was usually started by passing graded dilators through the endoscope. When a 36 F. dilator could be passed, endoscopic dilatation was discontinued and a 36 F. Hurst mercury-weighted rubber esophageal bougie was substituted. After a few training sessions with the therapist, the patient can usually pass this type of tube safely once daily. The size of the tube is gradually increased if possible to



Fig. 4.—Section of biopsy specimen showing epithelial necrosis, erosions, hyaline areas, polynuclear infiltration, and hypertrophy of the muscularis mucosae.

40 F. The results of this type of therapy are often strikingly good. These medical measures are usually successful and result in either a cure or a remission. We have seen a markedly constricted esophagus widen to almost normal diameter after dilatation.

Surgical Therapy.—We have used transthoracic bilateral vagotomy alone for one patient, gastroenterostomy with vagotomy for one patient, and subtotal gastrectomy for four patients.⁹ In general, the results of these operations have been disappointing. This may be due to the fact that surgery was instituted only in the severest cases with marked stenosis, hemorrhage, or intractable dysphagia. Whether the poor results are due to the persistence of free acid or to a continuation of the disease process into greater stenosis is conjectural. The fact remains that subsequent dilatations were necessary to relieve these patients from progressive stenosis. Theoretically,

the surgical procedure of resection of the lower esophagus and upper half of the stomach with bilateral vagotomy and esophagogastrostomy seems logical and should be carried out in selected cases. As yet, we have no experience with this form of therapy.

COURSE AND DIAGNOSIS

The disease had continued for 1 to 8 months in 10 cases; for 1 to 4 years in 7 cases; and for 4 to 10 years in 3 cases. Our data are insufficient to present the final radiographic and pathological results of therapy in these groups. Sixteen patients seemed to have done well with medical or surgical therapy. Three still had symptoms despite therapy, and one died of a perforation (case 3). Seven case reports are appended to illustrate the course of the disease.

The most important disease to be differentiated is, of course, carcinoma of the lower esophagus. The occurrence of peptic esophagitis in the older age group, the type of symptoms, the marked loss of weight, and the radiographic features combine to strongly suggest carcinoma. Although the radiographic features of peptic esophagitis are characteristic, they may be imitated exactly in a few rare cases by a carcinoma. Endoscopy alone may also be inadequate for the differentiation; therefore, biopsy is imperatively indicated.

Cardiospasm is usually easily differentiated radiographically and endoscopically. Other types of esophagitis may be diagnosed and separated from this group by the history and observations of definite causal agents. Such agents include prolonged vomiting, intubation, extensive burns, general infections, cerebral lesions, and chemical agents. We have also encountered a few cases of peptic esophagitis without any apparent etiological explanation. These will perhaps be clarified by the occurrence of a peptic ulcer of the duodenum or stomach later in their history. It should be stated that it is probable that mild degrees of peptic esophagitis associated only with heartburn and sour eructations may reveal no changes in the radiographic appearance of the esophagus and perhaps only slight endoscopic and histological changes.

REPORT OF CASES

CASE 1.—A 47-year-old man had had a duodenal ulcer for five years. Gastroenterostomy for pyloric obstruction was performed. Dysphagia and regurgitation were noted two weeks later. Roentgenograms showed marked constriction of the lower third of the esophagus. A biopsy specimen showed severe inflammation. Free acidity was 60 clinical units. The patient has been given liquids and ulcer medication for three years. He has gained weight and is doing well.

CASE 2.—A 64-year-old man had had a duodenal ulcer for five years. Pyloric obstruction developed. Free acidity was 52 clinical units. Dysphagia and loss of weight were noted for several months. Roentgenograms showed a narrow lower esophagus, distorted folds, serrated edges, and regurgitation. A biopsy specimen showed inflammation with hypertrophic epithelium. Gastroenterostomy with bilateral subphrenic vagotomy was performed. There was no relief of the dysphagia. Later, the patient was greatly improved by repeated dilatations.

CASE 3.—A 58-year-old man had had a duodenal ulcer for 15 years. Perforation of the duodenal ulcer eight years ago was followed by severe hemorrhage one year later. The patient had dysphagia for solids for four months. There was lower substernal pain, vomiting, and loss of weight. Roentgenograms showed irregular narrowing of the lower third of the esophagus and a penetrating duodenal ulcer. The patient's symptoms

8. Winkelstein, A.: *Modern Treatment of Peptic Ulcers*, New York, Oxford University Press, Inc., 1948.

9. Wangersteen, O. H., and Leven, N. L.: *Gastric Resection for Esophagitis and Stricture of Acid-Peptic Origin*, *Surg., Gynec. & Obst.* 88: 560-570 (May) 1949.

were relieved by intraesophageal milk-soda continuous drip therapy. A sudden perforation of the ulcer occurred a few weeks later. Two days after the suture of the perforated ulcer, sudden, severe, substernal pain and shock developed, and the patient died in 10 hours. At the postmortem examination a perforation of a gastric ulcer was found in a small piece of herniated stomach immediately below a severe stenotic peptic esophagitis. A huge callous duodenal ulcer was also present.

CASE 4.—A 60-year-old man had had dysphagia for solids, occasional vomiting, and loss of weight for five years. Esophagoscopy showed a circular punched-out ulcer in the lower end of the esophagus. The biopsy specimen showed superficial inflammation with epithelial proliferation. Roentgenograms showed a delayed emptying of the barium from the esophagus. An ulcer crater was not seen. Free acidity was 80 clinical units. The ulcer disappeared after three weeks of milk-soda drip therapy. Five months later, severe dysphagia set in. Roentgenograms showed narrowing in the lower half of the esophagus and slight dilatation above. Esophagoscopy showed esophagitis. During the next eight years the dysphagia persisted. For three years the patient was symptom free, and then he died suddenly of a coronary thrombosis. The esophagus showed inflammation microscopically but appeared grossly normal at the postmortem examination.

CASE 5.—A 42-year-old man had had ulcer symptoms for seven years. Dysphagia and regurgitation had been present for one year. Radiographs showed narrowing of the lower third of the esophagus and a gastric ulcer niche 2 cm. wide on the lesser curvature just above the angle. Free acidity was 42 clinical units. Esophagoscopy showed esophagitis and a flat posterior wall ulceration. Subtotal gastrectomy without vagotomy was performed. During the month following the recent operation he has swallowed his food easily.

CASE 6.—A 68-year-old man had had a duodenal ulcer for 20 years. For 10 years, severe heartburn and sour regurgitation were present. Three years ago, hematemesis occurred. Hemorrhage occurred again after an abdominal operation for a cecal neoplasm. Free acidity was 20 clinical units. Roentgenograms revealed a narrow lower third of the esophagus with a small hiatus hernia and a duodenal ulcer niche. The patient has been well for six months with ambulatory ulcer therapy.

CASE 7.—A 34-year-old man had had a duodenal ulcer for 10 years. Dysphagia was present for one year. Attempted transthoracic vagotomy was a failure because of adhesions. Roentgenograms showed a narrow lower third of the esophagus and a duodenal ulcer niche. The biopsy specimen showed acutely inflamed granulation tissue. Free acidity was 64 clinical units. A subtotal gastrectomy was performed. Dysphagia then became progressively worse, necessitating a jejunostomy. After several dilatations the patient improved, and the jejunostomy was allowed to close. Postoperative achlorhydria was shown by a histamine test.

COMMENT

This disease is apparently one that afflicts men in the older age groups. In the group under consideration, duodenal ulcer or gastric ulcer (and in one case a previous peptic ulcer of the esophagus) were constantly associated. From this feature, the location of the lesion in the lower third of the esophagus, and the hyperchlorhydria in most cases, the conclusion seems inescapable that this disease is peptic in origin. More important than these considerations is the histological finding of peptic inflammation. Furthermore, the response to medical and surgical anti-ulcer therapy is striking.

What the ultimate, detailed mechanism of peptic esophagitis is seems purely conjectural at present. As a working hypothesis, it may be proposed that peptic esophagitis probably commences with a more or less continuous transcordial reflux from the stomach of a highly acid peptic secretion. This reflux may result from the hy-

persecretion associated with duodenal ulcer or from an unexplained decrease in the tone of the cardiac sphincter. Perhaps the characteristic nocturnal hypersecretion with the patient in the horizontal position leads to a prolonged bathing of the lower esophagus by the highly acid gastric contents. As a result, a localized peptic esophagitis occurs in the lower esophagus with a spastic narrowing. Secondary traumatic and infectious factors then impinge in this lesion and lead to an upward extension involving one third or more of the lower esophagus. In addition there may be, especially in elderly persons with a predisposition to peptic ulcer, a disturbance in the circulatory state of the mucosa or a loss of the mucous barrier. Ectopic gastric secretory tissue was not found in this series of cases.

The disease is characterized by a long history of duodenal or gastric ulcer with a subsequent shorter history of esophageal symptoms. The chief symptoms are dysphagia, heartburn, regurgitation, substernal pain, and loss of weight. The complications are stenosis, hemorrhage, and perforation. There is no evidence that this is a precancerous disease. The response to medical therapy and mechanical dilatation is usually good. In a small percentage of the patients surgical therapy is necessary.

SUMMARY AND CONCLUSIONS

In 20 patients with peptic esophagitis 15 lesions were associated with simultaneous duodenal ulcer; 2 were associated with gastric ulcer. In one patient a gastric ulcer developed, and in one a duodenal ulcer developed. One case followed a previous peptic ulcer of the esophagus. The gastric acidity was high in 17 of the 20 patients. Transcardial reflux was noted in only two patients. The most prominent symptoms were dysphagia, heartburn, regurgitation, substernal pain, and loss of weight. The duration of the condition varied: 1 to 8 months in 10 cases; 1 to 4 years in 7 cases; and 4 to 10 years in 3 cases. Peptic esophagitis is chiefly a disease of elderly men (19 men, 1 woman); 11 patients were over 60 years of age and 8 ranged from 40 to 60 years of age. The course is relatively benign in most cases. There was one death due to perforation into the mediastinum. One patient died of a coronary thrombosis after three years of freedom from esophagitis. The chief complications were stenosis and hemorrhage. There was one perforation. Six hernias, five of which were small traction hernias, were noted.

The therapy usually consisted of medical treatment (the usual antiulcer or milk-soda drip therapy) and mechanical dilatations. Treatment was surgical in some cases. There were no esophageal resections in our series. Surgical therapy was not as successful as medical therapy plus bouginage. Partial esophageal resection plus resection of the proximal half of the stomach with vagotomy plus esophagogastrostomy seems to be the surgical procedure of choice. Four patients had had previous gastric operations. The cause seems to be the regurgitation of acid and pepsin into a lower esophagus with a susceptible mucosa. Ectopic gastric secretory tissue was not found in this series. This condition is important not only as a disease entity but also in the differential diagnosis from carcinoma of the lower end of the esophagus.

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OBSERVATIONS ON ROTATIONAL THERAPY WITH TWO MILLION VOLT ROENTGEN RAYS

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In the three and a half year period beginning October, 1949, about 500 patients were treated by rotational and multiportal methods with supervoltage roentgen rays produced at two million volts. Most of these patients had advanced malignant disease. It has become evident that the patient treated with 2 million volt radiation is usually able to accept tissue doses in the 6,000 r to 8,000 r range delivered in 35 treatment days or 7 elapsed weeks and that larger fields that include adjacent regions of lymphatic spread can be included in such treatment. Radiation sickness is markedly less than would be obtained with smaller doses of conventional radiation, and, the skin reaction is often a threshold or moderate erythema when the skin is included in the region of treatment. Moist skin reactions may be encountered in special situations such as irradiation of the folds of the skin or when the x-ray beam approaches the skin tangentially.

PHYSICAL AND BIOLOGICAL CONSIDERATIONS

Physical studies show that the roentgen rays produced by constant potentials of 2 million volts are closely equivalent in their effective wave length to the gamma rays from both radium and cobalt 60.¹ All of these radiations should therefore produce identical biological responses in tissue under similar conditions of irradiation. Compared with conventional deep x-rays, these supervoltage radiations possess clinically advantageous properties arising from their greater penetration into tissue, the relatively little scatter outside of the radiation beam, the far greater tolerance of skin at the portal of entry,² and the low ratio of bone-to-soft tissue absorption that characterizes radiation in the range of a few million volts.

The 2 million volt source of roentgen radiation used in these studies was an electrostatic accelerator of the Van de Graaff type at the Massachusetts Institute of Technology. Two such sources (manufactured by the High Voltage Engineering Corporation, Cambridge, Mass.) were available for this work, one of which is shown in figure 1. Although the radiation quality of this source was equivalent to that of the gamma rays from radium and cobalt 60, this machine accelerator possessed two impor-

tant clinical advantages: a high x-ray output in the beam greater than that of 6,000 gm. of radium or 4,000 curies of cobalt 60, and an almost "point" source of radiation that permitted sharp beam definition, with avoidance of the large penumbra that characterizes radioactive sources of even moderate output.

ROTATIONAL VERSUS MULTIportal THERAPY

That an x-ray dose could be more effectively applied by directing the beam toward the tumor from all possible angles of approach through the rotation of either the patient or the apparatus has been recognized for over 40 years. Such rotational or moving beam therapy has, however, been repeatedly discarded in the past because of the lack of a radiation capable of penetrating with sufficient intensity through the thicker body sections.

The availability at the Massachusetts Institute of Technology in 1948 of an intense source of 2 million volt roentgen rays opened up the possibility of treatment by continuous rotation. In the subsequent clinical program with the medical cooperation of the Lahey Clinic in Boston, rotational therapy has been found advantageous in the treatment of certain tumors of the brain, pituitary, pharynx, tongue, extensive cervical and supraclavicular nodes, thyroid, esophagus, bladder, cervix, and extremities. On the other hand, it is preferable to use multiple port therapy for treatment of tumors of the nasopharynx, lung, and lymphoid system and other tumors requiring very large fields or tumors located where radiosensitive regions such as the orbit or lungs must be avoided.

Figure 2 shows the patient's position and the resultant dose distribution obtained in treating pituitary adenomas by rotation using 2 mev roentgen rays. In this typical problem the sitting patient, carefully held in position by suitable supports, is rotated slowly about a vertical axis passing through the pituitary and the stationary horizontal x-ray beam of 4 cm. circular cross section is centered upon this axis at the proper elevation. The rotation of the patient (one revolution per minute or less is adequate) produces the maximum dose in a spherical 4 cm. volume, since this region is continuously traversed by the beam. Outlying regions, being in the x-ray beam only a fraction of the total time, receive a progressively lower dose the further their distance from the axis.

The advantage of rotational procedures is most conspicuous for small fields, but is still evident for the larger fields such as would be needed in delivering a radiation dose to the entire pelvic cavity. Figure 3 shows the dose distribution obtained in the typical pelvic port used in treating cervical cancer and illustrates the possibility of modifying the region of treatment with a posterior absorber to reduce the dose in the rectum and lower bowel.

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Dr. Hare is now at the Los Angeles Tumor Institute.

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The part of this study that was made at the Massachusetts Institute of Technology was supported in part by grant from the National Institutes of Health, United States Public Health Service and by grants from the American Cancer Society and the George F. Wyams Trust.

1. Evans, W. W.; Granke, R. C.; Wright, K. J., and Trump, J. P.: Absorption of 2-Mev Constant Potential Roentgen Rays by Lead and Concrete, *Radiology* 58: 560-567 (April) 1952.

2. Trump, J. G.: Physical Basis for the High Skin Tolerance of Supervoltage Roentgen Rays, *Radiology* 50: 649-654 (May) 1952.

BEAM SHAPING AND POSITIONING

Good therapy requires the careful shaping and positioning of the x-ray beam to include the desired treatment site with avoidance of unnecessary irradiation of normal tissue. Some of the field shapes that evolved in the course of the rotational and multiportal therapy program are illustrated in figures 4 and 5. Even with 2 mev radiation, it is feasible to adjust the aperture of the beam to the tumor-bearing region not only by the movable diaphragms that define a rectangular field but also by special absorbers and filters that further modify the shape and the intensity. By these methods it has been found possible in virtually every tumor situation that has been presented to deliver an approximately uniform dose to the primary region and the most likely invaded lymphatic regions, with reduction in the dose sustained by the surrounding tissue.



Fig. 1.—View through treatment room window of 2 million volt x-ray source (Van de Graaff type) and of rotating support for patients in rotational or multiportal therapy.

The use of radiographic films taken with the actual 2 mev x-ray treatment field has proved an invaluable procedure in insuring accurate positioning. Such films are commonly taken with the patient in the exact anteroposterior or lateral position and are usually double exposures in which a large background is superimposed upon the actual treatment field exposure. Such 2 mev radiographs have considerable diagnostic value³ and provide an excellent basis for modifying the field shape or position during the early days of treatment or for observing change in the tumor when tissue of low density or containing air passages is involved or displaced. As evidenced in figure 6, these 2 mev films show greater readability in thickness than the conventional radiograph and are free to a large extent from the scatter that accompanies diagnostic radiation. The low absorption of bone is due to the dependence of such supervoltage radiation on the atomic number of the absorber and is a tangible evidence that higher bone tolerance can be expected when such radiation is permitted to traverse bone in passing to a soft tissue tumor.

CLINICAL OBSERVATIONS

Although somewhat more than 500 patients have been treated since the start of the clinical phase of this 2 million volt x-ray study, the results must be stated in terms of palliation since the three and a half year period of use is too short for judging curability. At the outset important

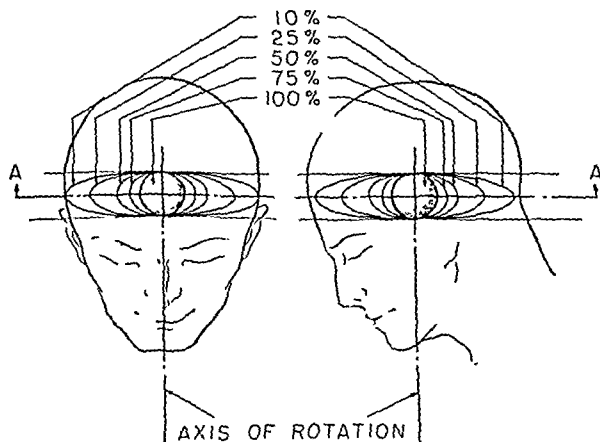


Fig. 2.—Head position for rotational treatment of pituitary adenomas with horizontal 2 million volt x-ray beam of 3 to 4 cm. aperture. Isodose lines indicate the rapid fall-off in the percentages of the tumor dose outside the spherical region of maximum dose.

decisions had to be made on the total dose necessary for the treatment of various tumors, on the period of time in which this dose could be delivered, and on the permissible volume dose that would be received by these patients when both the primary tumor and the surrounding region of lymphatic spread were included in the treatment. After

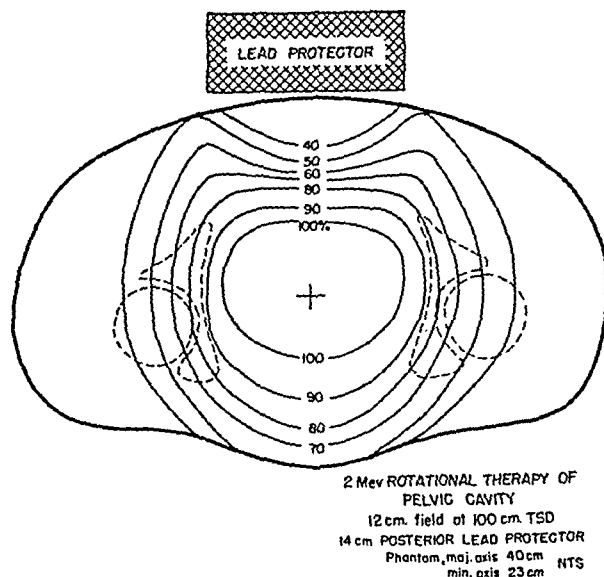


Fig. 3.—Dose distribution obtained in the rotational treatment of pelvic tumors using 2 million volt x-rays at a 125 cm. target-to-axis distance.

considerable study of the relevant literature and evaluation of our results with conventional x-ray and radium treatment, the program of dose levels and of time-dose relationships described below was with few exceptions followed throughout the subsequent period.

3. Hare, E. P., and others: Physical and Clinical Aspects of Supervoltage Rotational Therapy, *Radiology* 57: 157-167 (Aug.) 1951.

The table summarizes the clinical results obtained with the total group of patients treated up to Dec. 31, 1952, by 2 million volt x-ray radiation with the exception of those who were unable to complete their therapy because of general debility resulting from their disease. It must be remembered that at the inception of the treatment in many of these cases the disease was advanced and hope-

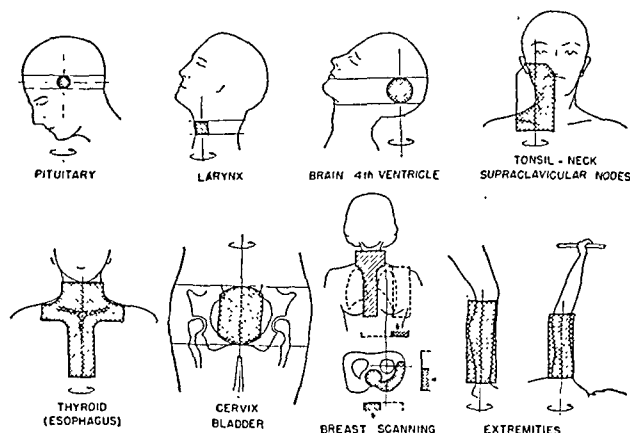


Fig. 4.—Typical field shapes used in rotational therapy with 2 million volt x-rays.

less by conventional standards, and a large percentage of them must be reported as "class B" cases because of previous surgery or irradiation.

DISCUSSION BY TYPE OF TUMOR

Lymphoid Tumors.—Our experience in cases of localized lymphoid tumors indicates that 2,400 r delivered to the tumor and the surrounding lymphatics is sufficient to control the recurrence of the disease in the region treated regardless of the histological type of lymphoid tumor encountered. Since these tumors usually have spread regionally at the inception of treatment, rotational therapy is less favorable than opposing portal treatment, which permits the inclusion of invaded regions with avoidance of the lungs or other uninvolved tissue.

For lymphoid tumors arising in the neck or mediastinum, which account for about 75% of lymphoid cases, we believe the entire lymphatic system of the neck, including the angle nodes of the mandible and the nodes of

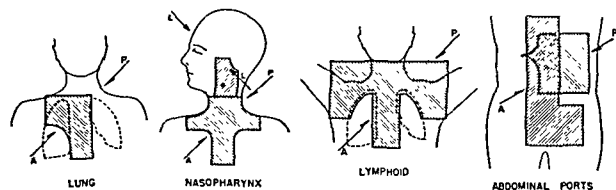


Fig. 5.—Typical field shapes used in opposing port therapy with 2 million volt x-rays.

the supraclavicular, infraclavicular, and axillary region, should be treated along with the mediastinal lymph nodes. Such a field, shown in figure 5, covers not only the known tumor but the likely areas of spread. We have found that patients tolerate the treatment of these regions at a daily dose rate of 170 r measured at the mid-depth to a total dose of 2400 r at that level, delivered in about 15 treat-

ment days or 3 elapsed weeks. In such treatment of lymphoid tumors the total body dose in gram-roentgens⁴ may reach levels in the range from 20 to 40 million gram-roentgens, and we have found it desirable to make blood studies throughout the treatment period, particularly for the more extensive cases.

Of 41 patients with lymphoid tumors of various types treated in the three year period ending Dec. 31, 1952, 27 had remained clinically free of disease and 5 showed persistent or metastatic disease at the last examination; 6 had died, usually within the first six months after the start of treatment.

Carcinoma of the Thyroid.—Thyroid carcinoma has become a commonly encountered lesion in the Lahey Clinic, treatment having been given in 59 cases post-operatively, in the three year period. We believe that the entire neck and mediastinum should be treated with a total dose of 4,800 r delivered rotationally, as shown in figure 4. This dose is given in 28 treatments over a six



Fig. 6.—A 2 million volt radiograph of the neck and chest showing excellent discrimination between air passages and soft tissue, good readability in both lungs and mediastinal regions, and relatively weak bone shadows suggesting lessened bone absorption and damage.

week period at the rate of 170 r per day measured at the axis of rotation. The dose delivered to the thin and thick tissue sections is equalized by the use of a copper filter that reduces by an appropriate amount the intensity in the neck portion of the field. A posterior absorber 14 cm. wide and close to the skin is used to cut out the beam during a portion of the posterior angle of approach and thus reduce the dose sustained by the spinal cord. The total body dose for this form of treatment is usually in the range of 20 to 30 million gram-roentgens. This has not caused significant changes in the hematopoietic system.

Epidermoid Carcinoma.—The most commonly occurring tumors are of the epidermoid type. Regardless of location, it has been our plan to treat such tumors with a total dose of 6,000 r measured at the tumor center and delivered at the rate of 170 r per day for five days a week. Except for lesions of the tongue and for the primary lesions in tumors of the cervix and bladder, this dose has appeared to be adequate. In cervix and bladder tumors

4. A gram-roentgen is the amount of ionizing energy absorbed when 1 r of radiation traverses 1 gm. of tissue.

that were treated with rotational fields (fig. 4), a total dose of 6,000 r in 35 treatment days has apparently been adequate to control lymphatic spread to the pelvic nodes. In a few instances, however, it has appeared that a higher dose would be desirable for the primary lesion. These tumors are therefore now receiving 8,000 r to the primary site in the same elapsed time with the dose near the pelvic wall remaining essentially unchanged.

In general the impression has been gained that super-voltage radiation by rotation offers good palliation in this type of case and that doses potentially capable of being tumoricidal in their effect can be delivered to the entire involved region without excessive reaction from the normal structures.⁵ In the cases of cervical lesions nearly all patients experienced diarrhea that was usually controlled with paregoric or a mixture containing kaolin and pectin (Kaopectate). Cystitis was infrequent, and so far complications have been limited to a few cases in which irradiation was previously given.

Brain Tumors.—Pituitary adenomas, which are benign lesions respond well to radiation treatment. The chromophobe tumor has been encountered most frequently, but in both the chromophobe and chromophile tumors, a dose of 4,000 r has been given at a dosage rate of 240 r a day. In the rare basophile tumors we have given 5,000 r at the same daily dosage, but in these cases the sella turcica is usually well within normal size and therefore the port size can be limited to 3 or 4 cm. This represents the ideal type of tumor for rotational therapy; 64 patients with pituitary adenomas were treated in the first three years. Medulloblastomas and pinealomas respond in a similar manner as lymphomas, and in these cases a dose of 2,400 r and 4,000 r respectively has been delivered. The pinealomas can be treated by rotational therapy very satisfactorily, and, since the major portion of the tumor is localized in the third ventricle, a small port can be used. However, in the cases of medulloblastomas in which the disease may be spread through the cerebral spinal fluid or there may be multicentric origin, the entire cerebral spinal system should be included in the treatment. The total dose must therefore be given slowly, 100 to 125 r a day being the quantity that one usually can administer to such large fields. Rotational therapy is not suitable in these cases.

Nasopharyngeal Tumors.—In our series of 13 cases treated in the three year period ending Dec. 31, 1952, nasopharyngeal tumors were treated by a variety of techniques. With all techniques, however, the aim was delivery of 6,000 r to the primary lesion and its lymphatic system in 35 treatment days or an elapsed time of about 7 weeks. We believe that this lesion is not suitable for rotational therapy, since it is desirable to include its possible extension laterally to the cervical and retropharyngeal nodes and also to the neck, supraclavicular, and mediastinal regions. Figure 5 shows the two opposing lateral fields, which include the regions requiring treatment in the head and neck and the anteroposterior fields that cover the supraclavicular region and the mediastinum. A special technique is used to avoid overlap at the abutting edges of these two field systems. This treatment was tolerated very well by the 13 patients, 10 of whom remained clinically free of disease for varying times up to three and one-half years.

Carcinoma of the Breast.—A special scanning technique has been developed to treat carcinoma of the breast either postoperatively or by radiation alone. This unusual method of therapy⁶ delivers about 6,000 r to the breast and all of the immediate surrounding lymphatic system, including axillary, supraclavicular, and internal mammary nodes, and neck. The scanning method shown in figure 4 has the effect of wrapping a band of ionization around the chest wall on the involved side with little irra-

Results and Number of Patients Treated with Two Million Volt Roentgen Rays

Location or Diagnosis	No. That Completed Treatment	No. Clinically Free of Disease	No. Dead 12/31/52	No. with Recurrent Disease	No. with Persistent Disease	No. with Metastatic Disease	No. Not Followed
Alveolar ridge	2	2	..	..	..	..	..
Abdomen	1	..	..	..	..	1	..
Bladder	29	13	7	2	7	..	..
Brain	30	17	9	2	1	1	..
Breast	28	13	12	..	..	2	1
Carotid body tumor.....	2	1	..	..	..	1	..
Cervix	33	22	4	..	5	1	1
Ear	1	..	..	1	..	..	..
Esophagus	18	8	10	..	..	..	..
Face and mouth.....	11	7	1	1	1	1	..
Femur	1	..	..	..	..	1	..
Kidney	1	1	..	..	..	..	..
Larynx	23	20	3	..	..	..	..
Lymphoid tumors	41	27	6	..	2	3	3
Lung	43	20	18	1	1	3	..
Liver	2	1	..	..	1	..	..
Nasopharynx	13	10	1	1	..	1	..
Neuroblastoma	1	..	..	..	1	..	..
Neck	2	..	..	..	1	1	..
Ovary	4	..	2	..	1	1	..
Pancreas	3	..	1	..	2	..	..
Parotid	9	7	..	1	1	..	..
Pharynx	8	3	4	..	..	1	..
Pituitary adenoma	64	32	3	..	14	..	15
Pituitary, malignant	6	3	1	..	..	..	2
Retroperitoneal	1	..	..	..	..	1	..
Sacral	1	1	..	..	..	..	..
Sarcoma, bone	13	11	..	..	..	2	..
Sarcoma, connective tissue...	14	8	2	..	2	2	..
Small intestine	1	..	1	..	..	..	..
Spine	3	3	..	..	..	..	..
Sternum	2	1	1	..	..	..	..
Stomach	18	8	3	3	3	1	..
Testicular tumor	8	5	3	..	..	..	..
Thyroid	59	38	12	..	1	4	4
Tongue and tonsil.....	13	5	4	..	2	2	..
Mediastinum	1	..	1	..	..	..	..
Melanoma	1	..	1	..	..	..	..
Penis	1	1	..	..	..	..	..
Ulcers	8	7	1	..	..	..	..
Urethra	3	1	1	..	1	..	..
Uterus	8	7	..	..	..	1	..
Vagina	1	..	..	..	..	..	1
Wilms tumor	3	1	2	..	..	..	..
	535	304	114	12	47	31	27

diation of either lung and usually producing only a good erythema and subsequent tanning over these regions. Of 28 patients treated in the three year period, most of them with advanced proved involvement of axillary, supraclavicular, or internal mammary nodes, 13 were clinically free of disease for up to three and a half years and 2 had persistent or metastatic disease.

5. Trump, J. G., and others: Treatment of Tumors of the Pelvic Cavity with Supervoltage Radiation, *Am. J. Roentgenol.*, to be published.

6. Hare, H. F.; Trump, J. G., and Webster, E. W.: Rotational Scanning of Breast Malignancies, *Am. J. Roentgenol.* 68: 435-447 (Sept.) 1952.

Bronchogenic Carcinoma.—Bronchogenic carcinoma was treated in 43 cases with 2 million volt x-rays⁷ with opposing anteroposterior ports of such shape as to include the mediastinum, the involved portions of the lung, and the supraclavicular regions. Doses up to 6,000 r delivered in 35 treatments were usually accompanied by relief of symptoms and regression or disappearance of the lung lesion. This therapy was followed in about six months by a mild to severe pneumonitis, which in a few cases was difficult to manage. Of the first 19 patients treated by radiation alone, 2 with advanced bronchogenic carcinoma remained asymptomatic for over 30 months. When possible, our present plan is to deliver first to the entire involved region a dose of 3,000 to 4,000 r. Then the lung is removed surgically to obviate late complications and permit histological evaluation of the radiation effect. Then the radiation therapy is continued until 6,000 r has been administered. Although this new plan is too recent for evaluation, it has become evident that this preoperative radiation renders operation feasible in some borderline cases. Of 43 patients treated by radiation alone or postoperatively or with intervening surgery, 20 were clinically free of disease for varying periods from 4 to 32 months.

Bone Tumors.—A small number of osteogenic sarcomas were treated during this period, most of them with 6,000 r to 9,000 r delivered in 35 to 50 treatment days. Figure 4 illustrates the method of treating the extremities rotationally when this or other types of disease are present. It is believed that 2 million volt x-rays are particularly favorable for treating tumors involving bone because, unlike conventional deep therapy radiation or ul-

tra-high-voltage radiation, this radiation is not selectively absorbed by the calcium component of the bony structure. Such 2 million volt radiation thus delivers its biological effect to the invaded soft tissue elements without excessive energy absorption in the bone. We have the clinical impression, as has been observed in radium beam therapy, that the tolerance of bone for 2 million volt x-rays is significantly greater than with conventional radiation.

SUMMARY

In the treatment of about 500 patients with 2 million volt x-rays by rotational or multiportal methods, it has been found possible to deliver more adequate doses to the primary lesion and the adjacent lymphatic system. Rotational treatment has been found advantageous for many of the more localized tumors such as those of the pituitary, larynx, esophagus, thyroid, breast (by scanning), bladder, cervix, and the extremities; on the other hand multiple or opposing ports are believed to be better in the treatment of advanced lymphoid lung, abdominal, and other tumors when very large fields are involved or when certain regions such as the eyes or the lungs must be protected. Because of the greater penetration, freedom from scatter, and high skin tolerance of 2 million volt x-rays, the patients tolerated more adequate treatment with less radiation sickness and less skin reaction than would be obtained with conventional deep x-ray therapy. The technique for careful x-ray beam shaping and positioning and the diagnostic value of 2 million volt radiographs are pointed out.

1407 S. Hope St. (15) (Dr. Hare).

7. Hare, H. F., and others: Radiation Therapy for Bronchogenic Carcinomas, Geriatrics, to be published.

DERMATITIS OF THE HANDS DUE TO HOUSEHOLD CLEANERS

Matthew J. Brunner, M.D., Chicago Heights, Ill.

Eczematous eruptions of the hands have always constituted an impressive proportion of all dermatological cases. As with other eczemas, eczemas of the hands have a varied etiological background, but it appears that an increasing number are being seen in housewives, among whom the factor of external irritation from cleansing agents used in housework may be of prime importance.¹ Of 145 cases of nonspecific eczematous dermatitis of the hands seen in the past 12 months, 108 were in housewives. The duration of the condition at the time of examination varied, but many of these patients had had an eruption on the hands, intermittently or continuously, for years. Few eruptions could be cleared in less than four weeks, and some required up to three months

of treatment. In view of the frequency and relative chronicity of this type of dermatitis, it deserves special consideration, and the possible causative role of household detergents as excitants of dermatitis in housewives also requires clarification.

CLINICAL FEATURES

Most cases conform to the description of housewives' eczema as given by Sulzberger.² They begin "with mild dryness, redness and scaling, which as the condition becomes more severe under continued exposure to soap and water, leads to fissuring and crusting, and eventually to vesiculation and ultimately to thickening and lichenification." The first reaction is often on the sides of the fingers and in the webs and occurs with special frequency on the left fourth finger, under the rings. In a well-established case, there is often a combination of erythema, scaling, fissuring, and acute vesiculation and edema in different areas on the dorsa and sides of the fingers (fig. 1) and the dorsa of the hands (fig. 2). Complicating monilial infections are occasionally seen, but ordinary pyogenic infection is commoner and is exhibited as pustulation, cellulitis, and even lymphan-

From the Department of Dermatology, Northwestern University Medical School.

Read before a meeting of the American Academy of Dermatology and Syphilology, December, 1952.

The photographs in figure 5 were taken by John Facq, the Toni Co.
1. (a) Seiber, H.: Investigations on the Effect of the Action of Washing Powders upon Human Skin, *Arch. Hyg.* 55:8-551, 1951.
(b) Hodgson, G.: Use of Household Detergents and Their Effects, *Practitioner* 170:166-174, 1953.

2. Sulzberger, M. B., and Baer, R. L.: Unusual or Unusual Effect of Soap on the "Normal" Skin, in *Medical Uses of Soap*, Philadelphia, J. E. Lippincott Company, 1946, pp. 51-59.

gitis. In old cases, discrete rounded vesicular or exudative eczematous patches may develop and simulate nummular eczema. During exacerbations of the dermatitis on the hands, an eczematid may appear as a diffuse papular or patchy eruption, usually on the forearms, arms, or face, but occasionally this becomes generalized. Extreme pruritus, burning, and discomfort are common complaints. In a large proportion of the cases, a previous diagnosis of fungus infection or neurodermatitis



Fig. 1.—Dermatitis of dorsa and sides of fingers.

had been made, and irritant or sensitization dermatitis resulting from inappropriate medication was superimposed on the original eruption.

Systematic questioning of patients revealed that subjective irritation or actual flare-ups of the already established eruption were repeatedly caused by the following materials: soaps, synthetic detergents, hot water, solvents (as in waxes and polishes), juices of orange, tomato, potato, and onion, stimulating or keratolytic preparations, ultraviolet light or sunlight, and x-rays in the acute phase. The condition was also aggravated by macerating influences, such as hyperhidrosis, especially during prolonged wearing of protective rubber gloves or prolonged soaks or wet dressings, and heavy applications of greasy occlusive ointments. Circulatory influences, including exposure to heat, alcohol ingestion, and emotional upsets, also caused aggravation.

Close observation of the clinical course suggested that the usual persistence of the eruption, even after contact with detergents has been stopped, is probably largely due to failure to recognize the role of these secondary irritating factors in perpetuating the inflammatory reaction. In this connection, special notice should be given to the importance of emotional upsets as exacerbating influences. Many patients reported flare-ups of the eruption immediately after a disagreement within the family or with other relatives, the

serious illness of a child, or some other domestic crisis. These reactions may be explained as effects of the circulatory changes in the skin that accompany emotional stress. Increased permeability of cutaneous capillaries has been shown by Kepecs, Robin, and Brunner³ to occur during hypnotically induced emotional stress. Significant increases were produced in the rate of exudation from an experimental cantharides blister under these conditions. Similar emotionally conditioned circulatory changes, with resultant exudation and edema, can perhaps accentuate already present inflammatory phenomena in clinical cases. Hyperhidrosis of emotional origin is also important as an aggravating factor in occasional instances.

TREATMENT

Treatment of housewives' eczema is based on these premises: that the eczema is primarily due to external irritation, that the inflamed skin is hyperirritable, and that it will react to certain influences and agents innocuous to intact skin. Obviously, all such irritants must be avoided if the dermatitis is to heal. For this reason, many of the conventional therapeutic agents have been discarded, such as coal tar and keratolytic preparations, x-ray therapy in the acute stages, ultraviolet radiation, and prolonged wet dressings or soaks. Although helpful in some cases, all of these were found to cause exacerbations frequently. At the first visit, the concept of the dermatitis as a reaction to external irritants is impressed



Fig. 2.—Appearance of dermatitis on dorsum of hand.

on the patient, so that cooperation will be given in the rigorous regimen that must be followed. The patient is urged to do only a minimum amount of housework, to send out her laundry, and to enlist the aid of her husband or children in dishwashing, and other kitchen duties. Contact with these and the agents previously cited is banned.

3. Kepecs, A., Robin, M., and Brunner, M. J.: Relationship Between Certain Emotional States and Exudation into the Skin, *Psychosom. Med.* 13:16-17, 1951.

and "wet work" can be done only while wearing protective rubber gloves. Rubber gloves are best worn with separate inner cotton gloves, although gloves lined with fabric may be substituted. Since even mild toilet soap generally produces irritation, the patient is directed to wash only with a tepid solution of Aveeno (a concentrate of the gum fraction of pure oatmeal) or boric acid.

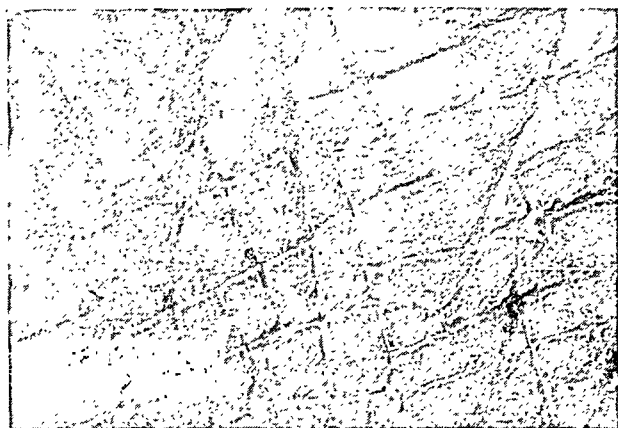


Fig. 3.—In tests of irritant properties of detergents, dryness, scales, and fissures developed after four or five daily washings.

Cosmetic cleansing creams are sometimes useful. Topically, petrolatum, boric acid ointment, zinc oxide ointment, or Lassar's paste, with or without a small amount of ichthammol (Ichthyol) or naphthalan, are generally safe. They may be applied as often as desired, but to avoid irritation they must be spread thin and not rubbed in vigorously. For "id" eruptions, a bland shake lotion is acceptable. X-ray therapy is withheld until vesicula-

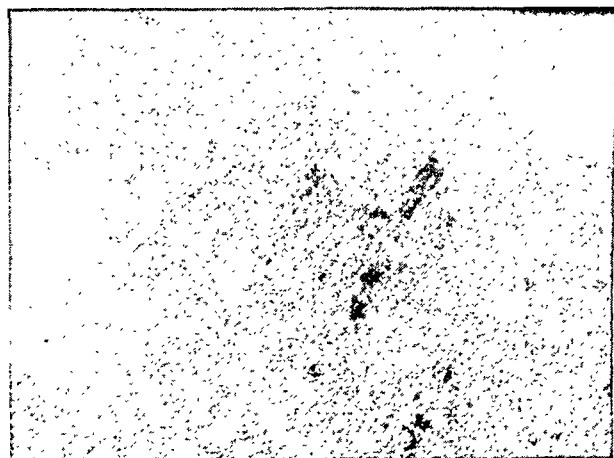


Fig. 4.—Reaction resulting from a five hour patch test with 4% sodium alkyl sulfate.

tion and exudation have subsided. Where secondary infection is manifest and is suspected, antibiotics are given orally and sometimes produce spectacular improvement. Oxytetracycline (Terramycin) or chlortetracycline (Aureomycin), in a dose of 0.75 to 1 gm. daily given for five to seven days, are preferred over topical application of antibiotics. If the factor of emotional tension appears important, administration of sedatives, such as phenobarbital, is useful. With this simplified

regimen, exacerbations caused by treatment are rare, and the incidence of suddenly developing eczematid eruptions is reduced to almost nothing, although in my experience this complication was not infrequently the first result of standard treatment methods. For a widespread eczematid that does not respond quickly to treatment, the use of cortisone by mouth in a dosage of 100 to 150 mg. daily will generally give relief. However, corticotropin (ACTH) or cortisone should not be employed as substitutes for dermatological management. Recurrence of the dermatitis after the hormones have been discontinued is usual, unless topical therapy and the program of avoidance of irritants are used concurrently.

COMMENT

Most household detergent compounds are based on anionic wetting agents, either natural (soap) or synthetic. Of the synthetics, the alkyl sulfates, alkylaryl

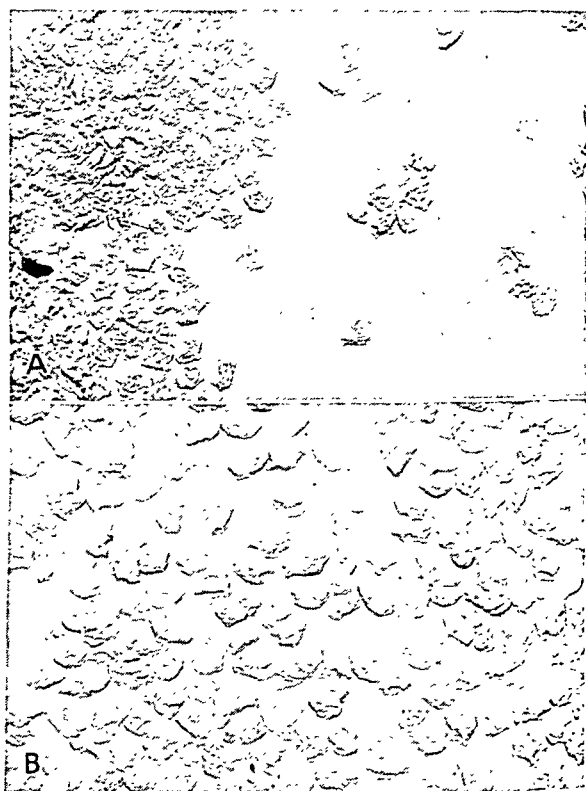


Fig. 5—A, results of soaking keratin scales in water and, B, in detergent solution showing swelling of cells ($\times 179$).

sulfonates, sulfated amides, and sulfated fatty acids monoglycerides are probably most widely used. Many detergent compounds also contain high percentages of inorganic salts, such as sodium sulfate, tripolyphosphate, or pyrophosphate, and the pH of different compositions ranges from neutrality to approximately 10.5. Optical bleaches, carboxymethylcellulose, perfume, and other materials are also incorporated. Although no attempt has been made to compare systematically all the different types, preliminary study indicates there can be considerable variation in their cutaneous irritant properties.

Evaluation of the irritant powers of these agents has been carried out by means of a simulated usage test. This included soaking the hands in a solution of wetting agents of 2 to 4% concentration at 45 C (138.6 F) for 20 minute periods on successive days. Progressive alterations in the skin developed in approximately 30% of 23 test subjects who used one particular agent. Dryness, scaling, and slight fissuring developed first, usually after four or five applications, while redness and pruritus appeared in some subjects with continuation of the soakings (fig. 3). Similar findings were obtained by Bober^{1a} who used a daily repeated scrubbing technique to demonstrate the irritating powers of detergents. Persons with dry skins appear to be predisposed to reactions, particularly during winter weather, when there is already some chapping. Results of patch tests (by means of a modification of the method of Emery and Edwards⁴) did not contradict these findings, since a single five hour application of 4% solution of a sodium alkyl sulfate produced reactions in 23 of 36 subjects (fig. 4). Reactions varied from erythema to vesiculation and lasted up to 10 days. Added to these findings, is the oft-repeated clinical observation that recurrence of dermatitis in housewives follows reexposure to household detergents. It can be stated then that, under actual or simulated usage conditions, the detergents tested produce reactions in some subjects; that the intensity of the reaction varies depending on individual resistance; and that repeated contact is usually needed to develop the reaction under use conditions. All the reactions noted were of the direct irritant variety. Although allergic eczematous sensitization to these agents can occur, it was seen only rarely in the cases studied.

Little is known about the mechanism of skin irritation by wetting agents; certainly removal of fat from the skin or neutralization of the acid mantle, the favored theories, cannot explain all the findings. For example, one of the most irritating agents studied had a pH of only 6.5, and, in a number of instances, skin pH showed little change from previous levels after soaking in detergent solutions known to be capable of producing irritation. No direct relationship was noted between fat emulsifying power and irritancy; on the contrary, preliminary studies suggest that both soaps and synthetic anionic detergents act by forming complexes with keratin of the stratum corneum and increasing its power of water imbibition and producing considerable swelling (fig. 5). Subsequent to this marked swelling, loss of coherence of the stratum corneum and resultant scaling or fissuring may be seen. These agents exert a similar but even greater effect on the less cross linked, more soluble prekeratin of the cells of the lower portions of the epidermis than on the relatively inert, fully cross linked keratin of the stratum corneum. Their action on the lower, living portion of the epidermis is the more important one, since inflammation is a reaction of the host to damage sustained only by living cells.

The power of the detergent to penetrate through the stratum corneum to the lower, living levels of epidermis is a major factor in determining the degree of damage.

As in other chemical interactions, the concentration and temperature significantly alter the rate of reaction. (This work will be reported in detail later.) The final effectiveness as a denaturant depends, however, on the molecular structure of the agent.⁴

SUMMARY AND CONCLUSIONS

Evidence can be accumulated that the so-called housewives' eczema is basically an external irritant dermatitis resulting from contact with cleansing agents used in housework. Studies suggest that some of the synthetic detergents used in housework may irritate; however, it cannot be assumed from this finding that such agents are the entire cause of clinical cases of dermatitis of the hands in housewives. Many other known irritants are also used, such as ammonia water, hypochlorite bleaches, phosphates, abrasive powders, and organic solvents in waxes and polishes. All of these may contribute to the production of dermatitis in varying degrees in different instances. Not only these substances but also the exacerbating influences previously cited must be avoided if permanent cure is to be effected. A regimen of strict avoidance of external irritants, along with bland, nonirritating topical therapy is generally successful. Recurrences are not infrequent after reexposure to household irritants, however, and patients should be instructed to continue use of rubber gloves for dishes and laundry work as a permanent measure. Similar eruptions may also be seen in bartenders, soda jerks, and others in occupations involving "wet work"; the mechanisms of production of the dermatitis and methods of treatment are identical.

1400 Otto Blvd.

4. Emery, B. E., and Edwards, L. D.: The Pharmacology of Soaps; Irritant Action of Soaps on the Human Skin, *J. Am. Pharm. A. Scient. Ed.* 29: 254-255, 1940.

Cardiovascular Surgery.—It is no longer adequate to state simply that the patient has congenital heart disease or acquired heart disease; the type of deformity must be determined. Whereas advances in diagnosis have increased the scope of surgery, so have the findings at operation added knowledge which increases the accuracy of diagnosis. Much may be learned at the time of operation by palpation of the exterior of the heart and great vessels and even more, in some instances, by inserting a finger into the interior of the heart. For example, digital exploration of the mitral valve through the left auricular appendage has emphasized the difficulties in differentiating by auscultation between mitral stenosis and insufficiency, and has caused some cardiologists to alter their interpretation of heart sounds. An important point is that knowledge has been extended rapidly by the combined efforts of physicians and surgeons. The surgeon can certainly profit from the mature judgment of the physician. We make a plea that you do not regard your fellow colleague as a mere technician. As a result of his opportunity to correlate clinical findings with the actual mechanical dysfunction of the heart as determined at operation, the surgeon has developed considerable skill in the evaluation of certain aspects of cardiovascular disease. . . . The advice and help of the radiologist and anesthesiologist with their knowledge of heart disease are invaluable.—J. V. Maloney Jr., M.D., and A. Blalock, M.D., *Problems in Cardiovascular Surgery, Annals of Internal Medicine*, January, 1954.

SURGICAL TREATMENT OF EMERGENCIES OF THE HEART AND VESSELS IN THE THORAX

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Of all the emergencies affecting the heart, cardiac arrest requires the most urgent treatment. Anoxia, vagal stimulation, anesthetic agents, unexpected reactions to drugs, and manipulation and displacement of the heart have been shown to be at fault, but frequently no apparent reason can be found.¹ Failure to recognize and successfully treat cardiac standstill or fibrillation within three to five minutes will usually, at best, result in permanent central nervous system changes.² Experience has shown that too often it is wasted effort to rely on the administration of cardiac stimulants through the intact thoracic wall. If this method has been tried and no perceptible return of cardiac function is apparent in a minute, one should waste no more time but proceed with thoracotomy through the left fourth interspace, cutting costal cartilages to gain exposure. Oxygen should be administered, preferably through an intratracheal tube; but, until the tube is in place, a face mask may be used to gain a positive pressure system. It is far better to open the thorax at once, without preliminary sterile precautions, unless they are immediately at hand, for the possibility of infection is much less important than the necessity for prompt restoration of the circulation.

One cannot determine, without making an electrocardiogram in each instance, whether the circulation has failed because of standstill or fibrillation; therefore, one must expose the heart, through the open pericardium, in order that the proper treatment can be applied. If ventricular fibrillation is present, it is best to use an electric defibrillator to establish a normal rhythm (fig. 1). It is probably advisable also to inject a solution of procaine amide or procaine into the chamber of the right ventricle while the defibrillating machine is being readied, meanwhile maintaining the circulation with rhythmic compression of the heart. Cardiac standstill is treated by rhythmic compression of the heart with the aid of calcium chloride solution, 10 cc. of a 10%, or 0.5 cc. of a 1 in 1,000 solution of epinephrine in 10 cc. of isotonic sodium chloride. Here, too, it is best to inject the solution into the right ventricle or pulmonary artery, for there will then be a gradual passage of the drug into the coronary vessels as it returns from the pulmonary vascular bed. Epinephrine encourages ventricular fibrillation; therefore, it must not be given in large doses and should probably be given in conjunction with procaine or procaine amide. When cardiac arrest is diagnosed, those at hand must proceed with resuscitative measures; for, although one may send for an expert, time is so precious that it is best not to wait for him to arrive.

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CONTUSION OF THE HEART

Contusion of the heart caused by automobile and industrial accidents may be evidenced by cardiac irregularity or electrocardiographic changes suggestive of coronary occlusion.³ Under such circumstances, the persistence of shock or the added burden of an operation under general anesthesia may favor coronary thrombosis. Treatment is usually best in the hospital, where there is recourse to oxygen, proper diagnostic aids, and special nursing. In general, these patients should be managed as though coronary infarction had, in fact, occurred.

Although attempted suicides through self-stabbing with sharp objects have given way to more certain methods, there are still many instances of stabbing with knives and sharp objects, usually inflicted by others; and occasionally such instruments become impacted in bone. It is doubtful whether a sharp weapon that is impacted in the region of the heart or great vessels should ever be removed before direct exposure of the involved deeper structures has been accomplished by thoracotomy. Failure to regard this precaution might lead to fatal hemorrhage.

CONTROL OF HEMORRHAGE

Many wounds of the great vessels within the thorax undoubtedly end fatally before treatment can be instituted. Not infrequently the wound of entrance is small and misleading and does not indicate the seriousness of the internal injury. Direct means of controlling serious bleeding are not available without open operation, as contrasted to extremity wounds in which the source of hemorrhage is obvious and capable of direct control. In continued intrapleural bleeding, the hemorrhage is due, usually, to lacerated intercostal or internal mammary vessels. If the hemorrhage is persistent, open operation is imperative to secure or repair the bleeding vessels. Bleeding from the lung usually subsides because of pulmonary collapse and the compressing effect of the hemothorax itself.

It must be remembered that 1,000 to 1,500 cc. of blood may be aspirated and, with blood replacement, operation will still not be required. Early and repeated aspiration of the hemothorax is indicated, without replacement by air, to permit early expansion of the lung.⁴ Massive clotting may occur as early as four to six hours after accumulation and preclude removal by aspiration. Observations during the recent war showed that from 15 to 20% of hemothoraces resulting from war injuries (and 5 to 10% of civilian) progressed to a chronic stage that required operative treatment, but enzyme treatment will no doubt reduce this number.⁵ Liquefaction of the clotted hemothorax by the use of these enzymes has some enthusiastic support. If a large organized clot persists after three to five weeks, however, decortication is in order.

Injuries to the vessels arising from the aortic arch may demand maximum skill and ingenuity to bring bleeding under control. One should not hesitate to resect the

clavicle in order to expose and control the carotid, subclavian, or innominate arteries.⁶ In some situations it is more feasible to perform median sternotomy in order to obtain an adequate exposure of the superior mediastinum to gain access to the origin of these vessels. It should also be remembered that proximal ligation of the subclavian arteries can be accomplished through anterior intercostal incisions, and this may be the wisest preliminary move when proximal ligation of these vessels is indicated.

ACUTE COMPRESSION OF THE HEART AND TAMPONADE

Acute compression of the heart has been the subject of study by numerous investigators, so that now there are explanations for most of the physiological alterations accompanying it.⁷ Beck has described the triad for acute compression of the heart as consisting of (1) quiet heart, (2) rising venous pressure, and (3) falling arterial pressure; it is also characterized by the presence of a paradoxical pulse. Filling of the right ventricle is dependent on the effective venous pressure, which in turn can be influenced markedly by an increase in intrapericardial pressure. In chronic compression the effective venous pressure may be considerably higher than it is in acute compression before the same degree of disability is produced. Under acute conditions, such as exist with hemo-pericardium from a stab wound, serious reduction in cardiac output may occur when the pericardial pressure is between 100 and 150 mm. of isotonic sodium chloride.

It is often said that acute cardiac compression is accompanied by a small heart. This is true, but the usual finding is that the cardiac silhouette and percussible border are enlarged, due to the presence of the fluid that is causing the disability. The heart is small, due to the compression by the surrounding fluid, but the physical and roentgen signs are of cardiac enlargement. One cannot determine the exact size of the heart under these circumstances without removing the pericardial fluid. Fluoroscopic and kymographic observations of the cardiac borders show diminished excursion. The low cardiac output causes a state resembling shock; inadequate circulation to the brain causes cerebral anoxia, unconsciousness, and at times incontinence. The neck veins are distended, and the venous pressure is high.

The initial treatment of acute tamponade resulting from a penetrating or perforating wound of the heart is usually conservative. An infusion of isotonic sodium chloride or blood is started and maintained during the period of observation.⁸ Aspiration is done with a long 16 or 18 gage needle either parasternally in the left fourth interspace or to the left of the xiphisternum. The preliminary trial at simple aspiration has developed from the experience of numerous surgeons who have demonstrated amply that this treatment alone frequently is lifesaving.⁹ Repeated aspiration often is necessary, and it is a common observation that the withdrawal of only a small quantity of fluid results in a miraculous recovery. This reversal of a desperate status may be only temporary, however, and one must constantly be alert to the possibility that within a few hours or less tamponade may recur and require further treatment. It is advisable to have the patient in the operating room during this ex-

tremely vital period, with preparations in order for thoracotomy, should the bleeding continue after two or three aspirations. It is to be expected that wounds caused by small, sharp objects would be less likely to cause serious bleeding than those due to firearms and large knives. A lacerated coronary vessel may cause rapid or slow filling of the pericardial space, depending on the caliber of the vessel, and on whether it is incompletely or completely severed. Under some circumstances the blood may clot, and the presence of the hematoma, with continued bleeding, may require open operation; for it may then be impossible to aspirate the blood. It is common to find some hemothorax, and this may require aspiration.

Intrapericardial tumors and infectious processes may cause pericardial effusion and tamponade.¹⁰ Under such circumstances aspiration is indicated as a preliminary step not only for relief of cardiac compression but also to establish the diagnosis through cytological and bacterio-

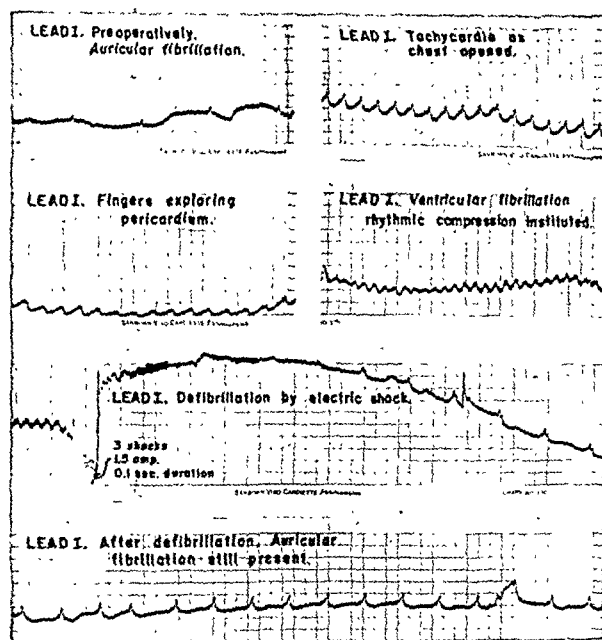


Fig. 1.—Electrocardiogram of a man being operated on for mitral stenosis. Ventricular fibrillation began just after the pericardium was opened and followed simple palpation of the heart. Electric defibrillation was successfully performed, and a valvotomy was done. The patient showed no ill effects from the ventricular fibrillation. Note the warning tachycardia that preceded the onset of ventricular fibrillation.

logical examination of the fluid. Injection of a small quantity of air may aid in making the diagnosis. Effusions from growths are best treated by making a dependent opening in the pericardium so that the fluid will drain into the pleural space. If drainage is necessary in purulent pericarditis it should be external. Hydropericardium may be caused by perforation of the esophagus from swallowed foreign bodies, esophageal ulcer, or trauma that has torn the pericardium and allowed air to enter from the pleural space. Foreign bodies may cause posterior esophageal perforations and then erode the aorta, producing fatal hemorrhage.

REMOVAL OF FOREIGN BODIES

A foreign body that penetrates the thorax and lodges in the heart or great vessels may follow a variety of peculiar courses.¹⁰ If it lodges within the lumen of a vein, it

tends to gravitate toward the heart, if in an artery, it is likely to leave the thorax and be found in a peripheral artery. There are recorded instances, however, of metallic fragments that have been pulled into the inferior vena cava and iliac veins by gravity. Occasionally a shell fragment or bullet may be impinged in the spine and temporarily plug a rent in an artery or vein, with subsequent



Fig. 2.—Oblique roentgenogram of the thorax of a marine who suffered a penetrating bullet wound through the sternum. The bullet was removed from the region of the heart between the aorta and pulmonary artery; it had been surrounded by edema and inflammation and had threatened erosion of the vessels.

hemorrhage from pressure necrosis or infection. Serious hemorrhage may occur when such foreign bodies are removed at operation if suitable precautions for proximal and distal control of vessels are not made. An example of the peculiar migration of a bullet was given by a man who suffered a penetrating wound in the left shoulder. There was a large hematoma around the clavicle, and an absent left radial pulse. Roentgen examination of the thorax failed to show the presence of the bullet. Subsequently the patient complained of coldness and pain in the left leg, and further studies revealed that the bullet had lodged in the left common femoral artery, from which it was removed with eventual complete recovery. Undoubtedly it had entered the aorta through the left subclavian artery, lost its force, and was carried downward by the blood to the distal artery.

Removal of retained foreign bodies from the region of the heart and great vessels became almost a commonplace procedure during and after the last war.¹¹ In competent hands there is practically no mortality from such operations, leaving little to favor an attitude of non-removal of foreign bodies that are causing few or no symptoms. Quite apart from the psychological aspects of retained metal there is always the possibility of recurring

endocarditis, pericardial effusion, pericarditis, and aneurysm. Furthermore, such retained foreign bodies may be asymptomatic until sudden erosion of the heart or great vessels occurs. It is usually easier to recover those that have been in situ for a time than it is just after they become lodged, for hemorrhage and edema obscure landmarks. Large foreign bodies are more dangerous than small ones; and irregular, jagged ones are more apt to erode than smooth ones.

REPORT OF CASES

CASE 1.—A 26-year-old marine suffered a penetrating gunshot wound of the sternum while he was in combat in North Korea. There was only minimal immediate discomfort and disability, and roentgenograms showed that the bullet lodged in the upper portion of the heart (fig. 2). Subsequently, there was some infection of the sternum that responded to curettage and antibiotics. Six weeks later, while the marine was on sick leave at home, pericarditis developed, requiring hospitalization and treatment with antibiotics. After recovery, operation was performed through an intercostal incision, and the jagged bullet, surrounded by edematous and inflamed tissue, was found embedded in the heart between the origin of the aorta and pulmonary artery. It soon would have caused erosion and sudden fatal hemorrhage. Removal of the bullet was followed by the patient's prompt recovery and return to duty.

CASE 2.—A marine was wounded in action on Aug. 17, 1950, in Korea. The bullet entered the right anterior thorax, causing a massive right hemothorax. Early treatment consisted of transfusion and aspiration of the hemothorax. Roentgenograms revealed the bullet lying in the posterior portion of the left side of the heart (fig. 3A). The marine was subsequently evacuated to the U. S. Naval Hospital, Oakland, Calif. He then had signs of heart failure with generalized edema, enlarged liver, and ascites. There was a loud continuous murmur to the left of the sternum, loud systolic and diastolic murmurs in the aortic area, and blood pressure of 138/40 mm. Hg, indicating either an incompetence of the aortic valves or a large fistula involving the aorta. After two weeks of preparation during which there was only slight improvement, a thoracotomy was performed on Sept. 19, 1950, with the hope of closing the fistula and possibly recovering the missile. At operation it was apparent that the fistula was within the heart and not accessible to closure; the bullet was not recovered. The patient's postoperative course

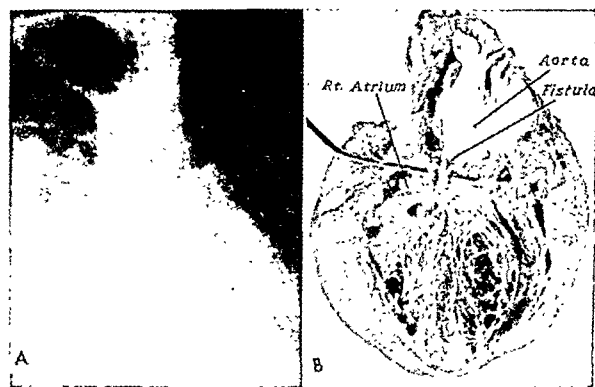


Fig. 3.—A, roentgenogram of the chest of a marine, showing the resolving hemothorax, enlarged heart, and the position of the bullet. B, photograph of the heart of the marine, who died five weeks after suffering a penetrating wound from the bullet. The bullet had passed through the right atrium into the subaortic area, where it had lacerated an aortic cusp, and lodged in the wall of the left ventricle.

was progressively worse, with death from heart failure five weeks after injury. Necropsy revealed that the bullet had passed through the right atrium into the subaortic area, had cut an aortic valve cusp, and then had become embedded in the wall of the left ventricle (fig. 3B). Death was due to a right atrium-subaortic fistula and aortic insufficiency.

AORTIC ANEURYSMS

Aortic aneurysms continue to challenge the skill and ingenuity of each generation of surgeons. Although surgical progress in this field has been slow, we now have three methods of dealing with thoracic aneurysms. The instillation of long lengths of fine wire into saccular aneurysms is still being utilized, and the results of such treatment are occasionally satisfactory. Under favorable circumstances, wrapping the aneurysm with polythene film impregnated with dicetyl phosphate will cause the deposition of a fibrous envelope, and help to prevent expansion.¹² An aneurysm that threatens to burst through the thoracic wall may be halted by wrapping its neck with this material, causing gradual occlusion and thrombosis of the sac. It is now apparent, however, that, if the adjacent aorta is not too badly diseased and if adequate dissection is possible, it is feasible to resect some saccular aneurysms involving the aortic arch, with repair of the base by arterial suture.¹³

The technical feasibility of resecting a segment of the descending or thoracic aorta containing an aneurysm complicating a coarctation has been demonstrated.¹⁴ Here, there is a rich collateral circulation that permits total aortic occlusion during the repair. But, in the presence of an acquired thoracic aneurysm, without coarctation, there is no established collateral to maintain the viability of the spinal cord or to ensure renal function. Experimental shunting procedures have been utilized to

avoid this difficulty, and on one occasion a lucite tube was used to maintain the circulation while a graft was sutured in place.¹⁵ As yet there is no satisfactory treatment for dissecting aneurysm.

SUMMARY AND CONCLUSIONS

When the diagnosis of cardiac arrest is made, prompt resuscitative measures should be instituted by those immediately in charge of the patient. Contusion of the heart is treated as though infarction had occurred. Wounds of the vessels arising from the arch of the aorta may require median sternotomy, resection of the clavicle, or intercostal thoracotomy for proper exposure and control of hemorrhage. Hemothorax is treated conservatively by repeated aspiration unless the bleeding is continuous or massive. Cardiac tamponade is best treated by aspiration unless it recurs or is persistent; then thoracotomy is indicated. In general, most foreign bodies that become lodged in the region of the heart or great vessels should be removed, regardless of whether they are causing symptoms. Failure to do so may lead to pericarditis, erosion of the heart or great vessels with serious hemorrhage, or aneurysm. Although there is no satisfactory surgical treatment for dissecting aneurysm, other aneurysms involving the thoracic aorta or its great vessels may at times be satisfactorily controlled by wiring, wrapping with reactive polythene film, or under favorable circumstances, resected. Whenever feasible, the latter treatment is to be preferred.

INJURIES OF THE CHEST WALL

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Injuries to the chest may be penetrating or nonpenetrating, depending on whether a wound through the chest wall has occurred. The penetrating wounds are divided into closed penetrations and sucking wounds. Nonpenetrating injuries, resulting from a blow to, or severe compression of, the thorax, usually involve fractures of the bones of the chest wall and shoulder girdle. A penetrating wound of the chest may involve injury to one of the intercostal or internal mammary vessels, the lungs, the heart, or great vessels. Sucking wounds require prompt closure by any means. Occlusive dressings should be used until adequate surgical facilities become available. Large traumatic defects in the chest wall may be closed by means of periosteal or perichondrial flaps or by steel wire mesh. The associated pneumothorax or hemothorax must be treated by appropriate measures.

Nonpenetrating injuries of the chest are steadily increasing in incidence due to the present modes of travel at high speed. Those injuries that result from severe compression of the thorax are commonly referred to as crushed chest, stove-in chest, or flail chest. They are frequently associated with trauma to the head, extremities, and abdominal and thoracic viscera and carry a high mortality. The shearing force of these injuries may produce contusion of the myocardium; rupture of the diaphragm, bronchi, or aorta; or chylothorax. Severe

respiratory embarrassment results from interference with normal chest wall motion, contusion and edema of the lung, pneumothorax, or hemothorax.

Wood¹ has demonstrated that after even minor injury of the chest wall, such as a fracture of a single rib, there is a marked reduction in oxygen absorption on the affected side. Thus, even though no ribs are fractured, as a result of severe bilateral compression of the chest wall with painful splinting of the intercostal musculature, the ventilation of both lungs is reduced. Concomitantly acute pulmonary hypertension with transudation of fluid into the lung results from closure of the vascular bed surrounding the poorly ventilated alveoli. This course of events, sufficiently severe, may result in death, because of pulmonary edema alone. Also, pneumothorax, hemothorax, paradoxical motion of the chest wall, and pendulum respiration, with collection of blood and fluid in the tracheobronchial tree, combine further to diminish alveolar ventilation and compound the pulmonary edema. How long the person can stand this depends on his respiratory reserve and the severity of the injury.

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TREATMENT

Minor injuries, usually involving the fracture of one or a few ribs, in which the loss of pulmonary ventilation is still within endurable limits, may be treated simply by methods that will prevent further loss of function. The progression of anoxic pulmonary edema may be prevented with oxygen supplied by mask or nasal catheter. Pain is relieved by a paravertebral block of the intercostal nerve segments involved, as well as those adjacent to them above and below. This may be repeated as often as necessary. Adhesive strapping is to be avoided as ineffective.

The patient is encouraged to cough, but he is often unable to do so effectively. Repeated intratracheal aspiration by means of a catheter or even bronchoscopy is usually indicated to prevent the development of increasing atelectasis. Antibiotics are administered. Sedation should be kept at a minimum lest the patient drown in his own secretions. Barbiturates are to be avoided entirely, and only small doses of opiates should be used. Delayed pleural effusion, the late development of pneumothorax, and evidence of cardiac contusion are to be carefully watched for by means of serial electrocardiograms.

Severe crushing injuries rapidly result in dangerous ventilatory insufficiency. The treatment of these injuries consists of the elimination of paradoxical motion as a factor in inefficient ventilation, the maintenance of an adequate airway by repeated removal of tracheobronchial collections of blood and secretions and the relief of pain.

Stabilization of the chest wall may be very difficult. Adhesive strapping is ineffective and reduces vital capacity. Skeletal traction by means of screw hooks, tenaculae, or wire inserted into or around the ribs of sternum has been used with satisfactory results. The administration of oxygen under positive pressure and the use of the Drinker respirator have been beneficial in decreasing paradoxical motion and improvement of ventilation.

One of the most interesting means of decreasing paradoxical motion of the chest wall is the use of tracheotomy as suggested by Carter and Giuseffi.² In the experience of these authors the simple procedure of tracheotomy reduces motion of the fractured ribs and provides an easy method of aspirating tracheobronchial secretions. The beneficial effects of tracheotomy are due to a reduction in volume of dead space in the respiratory tract and a decrease in resistance to inspired and expired air. By means of tracheotomy the dead space is reduced roughly from 150 cc. to 50 cc.; thus, the amount of tidal air available for alveolar ventilation is increased by 100 cc. This amount of increase becomes significant in severe crushing injuries of the chest in which the tidal air may be diminished from a normal volume of 500 cc. to as low as 320 cc. Reduction in resistance to inspiration and expiration by means of tracheotomy is reflected in the in-

tratracheal and intrapleural pressures. Carter and Giuseffi have observed that in both animals and man the intrapleural pressure changes are reduced roughly one half after tracheotomy. With the reduction of resistance to inspiration and expiration, paradoxical motion is minimized, subcutaneous emphysema is decreased, and pain is lessened.

Adequate tracheotomy care is mandatory, including cleansing of the inner tube, frequent aspiration, keeping in mind the patient's inability to cough effectively, and humidification of air by means of live steam or a good nebulizer. Oxygen under positive pressure may be supplied according to the method described by Jensen.³

Tension pneumothorax may develop rapidly, with or without fractures of the ribs. If physical examination of a patient in marked respiratory distress reveals the signs of pneumothorax, prompt relief of the tension should be obtained by the immediate insertion of a needle in the second interspace in the midclavicular line. Whether the pneumothorax is of the tension variety or not, the use of a catheter inserted through a trocar at the site of election and connected to a water-sealed system will more effectively promote rapid expansion of the lung and will insure against rapid reaccumulation of air. If air continues to bubble forcibly through the water-sealed system, a ruptured bronchus must be considered.⁴

Hemothorax should be treated by prompt, repeated aspiration or early catheter drainage. The site of election for drainage of blood or fluid is through either the eighth or ninth interspace in the posterior axillary line. In a patient with marked respiratory insufficiency the use of a catheter is preferred to repeated needle aspiration for rapid reexpansion of the lung. It has the additional advantage of permitting reasonably accurate measurement of blood loss while it occurs.

SUMMARY AND CONCLUSIONS

Severe injuries of the chest wall result in dangerous ventilatory insufficiency. Severe acute pulmonary edema may develop because of marked reduction in ventilation of both lungs, together with closure of the vascular bed surrounding the poorly ventilated bronchi and acute pulmonary hypertension. Minor injuries of the chest wall that do not produce an intolerable reduction in pulmonary ventilation require paravertebral block to relieve pain, frequent tracheobronchial aspirations to remove blood and secretions, oxygen to combat anoxic pulmonary edema, and occasionally adhesive strapping in an attempt to stabilize the chest wall.

Severe crushing injuries resulting in dangerous ventilatory insufficiency require elimination of paradoxical motion of the chest wall, maintenance of an adequate airway by repeated removal of tracheobronchial secretions and blood, and relief of pain. Tracheotomy, through its reduction in volume of dead space in the respiratory tract and the resulting decrease in intratracheal and intrapleural pressure variations, appears to increase alveolar ventilation, reduce paradoxical motion, relieve pain, and provide for repeated tracheobronchial aspirations.

Pleural complications of pneumothorax and hemothorax require closed drainage by a catheter inserted through a trocar or repeated aspiration by a needle.

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EMERGENCIES OF THE LUNGS AND ESOPHAGUS

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Emergencies that involve the lung are usually serious, sometimes alarming, and always require prompt and intelligent treatment. The problem is one of a profound physiological disturbance—the patient cannot breathe, and the urgency of the situation is obvious. Here, as in other emergency situations, the thing not to do is to mask all symptoms by excessive medication, particularly with respiratory depressants and specifically morphine. Pain is rarely a serious problem, and panic, which is, can be controlled by barbiturate sedation plus a feeling of confidence in the attending doctor. This confidence will follow if the attending physician or surgeon knows what he is doing and does not feel that this knowledge is the special prerogative of the thoracic surgeon.

PNEUMOTHORAX AND HEMOTHORAX

As a practical matter, in dealing with trauma it is impossible to separate the problems of the lung from those of the chest wall and pleural space. The treatment of pneumothorax and hemothorax, however, is fundamentally the same whether associated with trauma or not. The objective of that treatment is the prompt reexpansion of the lung to obliterate the pleural space and to restore ventilatory function. The method of treatment is aspiration of the chest. This can be done most simply by needle aspiration, but, if the pneumothorax reaccumulates or if there is reason to think that it may, a small intercostal catheter can be inserted through a trocar under local anesthesia. This catheter should then be connected to some form of suction that should not exceed 20 to 25 cm. H₂O "negative" pressure and ordinarily should be at about -10 cm. H₂O.

Certain objections to prompt aspiration are frequently raised. The commonest of these is that rapid expansion may reopen the leak in the lung that led to the pneumothorax in the first place. This is theoretically possible. As a practical matter, however, it rarely, if ever, occurs so long as the degree of suction is kept within the physiological range mentioned. Furthermore, should the leak reopen after the lung is reexpanded, effective suction will maintain a negative intrapleural pressure and the lung will remain inflated. This situation is commonplace in the immediate postoperative period following many pulmonary resections.

A second objection is that the lung may be damaged as it reexpands against a sharp needle projecting into the pleural cavity. For this reason intercostal catheter drainage is to be preferred if more than one aspiration is needed or if it is necessary to maintain suction over any period of time. However, reasonable care in inserting a needle and withdrawal of that needle if contact with the expanding lung is felt should be enough to safeguard the lung from more than negligible damage. This objection is, therefore, a technical one as is the objection that infection may be introduced into an otherwise uncontaminated space.

Finally, strong objection is often raised to the prompt aspiration of a hemothorax. Here again the object of treatment is prompt expansion of the lung to fill the pleural space and to prevent its encasement by a constricting fibrin peel. Prompt aspiration is indicated, and the objection that by so doing one may reactivate bleeding is hardly valid for the following reasons. 1. If the bleeding is from the pulmonary circuit, this is low pressure bleeding, which once sealed off shows little tendency to start again. This observation can easily be verified in the operating room. 2. If the bleeding is arterial and from the chest wall or diaphragm, it is highly improbable that the changed intrathoracic dynamics due to aspiration will materially alter the bleeding situation. 3. If the hemorrhage is continuing, it is best to know this and to take active steps toward control.

There are, of course, certain practical modifications of the foregoing statements. Small pneumothoraces and small collections of blood need not be aspirated. By small I mean a pneumothorax in which the lung is separated from the chest wall by no more than an inch, or a collection of fluid is estimated to be less than 100 to 200 cc. As a rule a roentgenogram of the chest is taken before aspiration to confirm the diagnosis of pneumothorax and to define its extent. In the presence of any significant degree of respiratory distress, however, the delay necessary to secure a roentgenogram is dangerous.

Aspiration and/or closed drainage will generally effect reexpansion of the lung within 48 hours and is all that is indicated so long as a significant degree of expansion is promptly obtained. If only fair expansion is achieved and the patient fails to show steady improvement during the next few weeks, early exploratory thoracotomy is indicated for stoppage of the leak and expansion of the lung directly under vision. By thoracic surgical standards this procedure is not of great magnitude and is highly effective. It should certainly be done for a chronic pneumothorax or recurrent spontaneous pneumothoraces unless very definite contraindications exist.

There are two other surgical emergencies that involve the lung for which it is necessary to have some preformed plan of action. The first of these is severe hemoptysis; the second is major bronchial obstruction.

SEVERE HEMOPTYSIS

Sudden, severe hemoptysis is one of the most alarming things that can happen to a patient but fortunately, except as the terminal event of some severe illness, is very rarely fatal. Imparting this knowledge to the patient plus moderate sedation and strict rest are the first principles of treatment. It is important to remember that hem-

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orrhage of any great amount cannot remain concealed in the bronchial tree as it can in the gastrointestinal tract or in a body cavity. One therefore has the advantage of being constantly posted on how much bleeding is actually going on. There is, however, the disadvantage that hemorrhage from the lung can kill not only by exsanguination but also by drowning. Since this thought frequently occurs to the patient, the physician is under pressure to determine the cause of the bleeding and to localize its source. This is particularly true if the hemoptysis is large in amount or is a continuing one. Under these circumstances the need for emergency surgical intervention may arise, but, before this can even be considered, positive evidence must be had to lateralize the source of the bleeding. A chest roentgenogram may supply this evidence, particularly if it discloses a tumor mass, an abscess cavity, or localized bronchiectasis. Mere evidence of atelectasis is not enough, since collapse may be the result of aspiration of blood into any of the segmental bronchi. Bronchoscopy during the time of actual hemoptysis has a real place and should be more frequently used than it is. This procedure is ordinarily not difficult, except in the face of very active bleeding and in a high proportion of cases will yield the information desired, namely, from which lobe the bleeding comes. Bronchoscopy during a bleeding episode should not be attempted, however, unless facilities are available to proceed immediately with thoracotomy should serious bleeding be activated or a source of severe bleeding be found. The decision of when to operate in the presence of severe pulmonary hemorrhage requires the judgment and teamwork of physician, surgeon, and anesthetist.

BRONCHIAL OBSTRUCTION

Acute major bronchial obstruction by inhaled foreign body or by mucous plug is an emergency that is so well known that it hardly need be considered in detail here; however, there are one or two points that should be made. One of these is the difficulty of recognizing the emergency for what it is. For example, a child may have pneumonia that fails to respond promptly to one of the antibiotics. Only then may the history of an unobserved choking spell be elicited. Another very pertinent example is the child who, after a history of possible foreign body inhalation has an incomplete radiological examination that, because fluoroscopy or expiration films are omitted, fails to show evidence of trapped air. Every third year medical student knows that a foreign body in a bronchus may act as a ball valve, but it is surprising how one can forget this in practice, especially when the foreign body is not radiopaque.

The treatment of major bronchial obstruction is, of course, prompt removal of the obstructing agent before irreversible changes occur in the bronchus or the lung distal to the obstruction. A foreign body should be removed endoscopically if possible, by thoracotomy and bronchotomy if necessary. A mucous plug, which is a frequent cause of postoperative atelectasis, may require bronchoscopic aspiration if tracheal suction and measures designed to promote cough fail to dislodge it.

ESOPHAGEAL PERFORATION

Exclusive of bleeding varices, the common emergencies of the esophagus are obstruction and perforation in association with foreign bodies, acute chemical "burns," and instrumentation. Spontaneous perforation of the esophagus is known to occur but is uncommon, and in civilian life perforation of the esophagus from external trauma is rarely a surgical problem since it presupposes almost intolerable damage to the mediastinum.

Antibiotic therapy has produced a striking change in the management of esophageal perforation. This emergency may be divided into two distinct categories. The first is perforation with mediastinitis but without evidence of free communication with the pleural cavity. Surgical drainage is rarely necessary, but antibiotics in generous amounts and a nothing-by-mouth regimen for 48 to 72 hours will suffice. The mixed flora of the saliva including many anaerobic mouth organisms should be kept in mind in determining which antibiotics to use. Drainage is ordinarily required only if abscess formation occurs.

The second type of esophageal perforation is free perforation into a pleural cavity with an associated hydropneumothorax. Particularly in a crying child, this pneumothorax may assume dangerous proportions. The immediate treatment is aspiration of the chest and closed drainage. If facilities are available the logical treatment is then exploratory thoracotomy and suture of the perforation. If this is done within 24 hours, the mediastinal and esophageal tissues should be quite suitable for careful primary closure.

The same general policy should govern the management of "spontaneous" perforation of the esophagus. The difficult problem here is making the diagnosis. This emergency is generally, but not always, associated with severe vomiting and retching often after or during an alcoholic bout, or with known peptic ulcer disease. The clue to the diagnosis is the character of the pain, which is similar to that of a perforated ulcer in its onset and prostrating effect but with a substernal and pleuritic component. There is likely to be considerable abdominal rigidity, and the differential diagnosis may only be resolved by radiological examination.

CHEMICAL BURN

The acute chemical burn of the esophagus is a catastrophe that occurs to the child, to the would-be suicide, and occasionally to the student in the chemistry laboratory. The immediate treatment is the oral administration of a neutralizing agent, classically, weak vinegar for caustic alkalis, bicarbonate for acids, and soothing oils for both. During the acute phase the patient will tolerate nothing but liquids by mouth, and frequently these only in small amounts. One to two weeks after the accident is ordinarily the critical time in the management of esophageal burns. It is at this time that the weight of expert opinion favors the institution of a program of gentle bougienage that may extend over a period of months or years. The tragic consequences of an extensive esophageal stricture are well known.

CORTISONE THERAPY IN Rh INCOMPATIBILITIES

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In a preliminary article, the subject of cortisone therapy in Rh incompatibilities was first given recognition.¹ At that time, 12 cases had been studied in which it was evident that there might be some indication for the use of cortisone therapy in Rh incompatibilities. This concept was arrived at from observations in a large number of Rh incompatibilities. It was frequently noted that women with high Rh antibody titers delivered infants in relatively good condition, whereas some women with relatively low Rh antibody titers delivered infants that had severe erythroblastosis or even stillborn infants that died of the disease.²

The great variation in the disease, with patients having similar titers, led to the belief that there must be some other influencing feature beside the antibody titer. Further observations revealed that severe anemia developed in many erythroblastotic babies in the neonatal period, while in others very little anemia developed even though the infants were delivered of mothers with similar titers.

In acquired hemolytic disease of the adult, it has been observed that the use of cortisone and corticotropin (ACTH) tends to inhibit the hemolysis of the red blood cells affected.³ These red blood cells show the presence of antibodies on their surface as indicated by the positive direct Coombs' test. The similarity between this type of anemia and hemolytic disease of the newborn was apparent. Studies were initiated, therefore, to determine whether or not cortisone and corticotropin could possibly be effective in preventing erythroblastosis. In the initial study, the observations were limited to those on the newborn babies at the time of delivery. More recently studies have been directed to the baby in utero.

Previous studies on the involution of the adrenal cortex⁴ in the newborn led to the consideration that delivery was of prime importance in this phenomenon, because it removed the baby from the influences of corticotropin in utero. This involution of the newborn's adrenal cortex has been consistently observed. It is concurrent with hemolysis of the red blood cells. Proof of the correlation of hemolysis of the red blood cells in a baby with a positive Coombs' test with the adrenal cortical involution was then of foremost consideration.

From other observations in our laboratory, poor placental development has resulted in poor pregnanediol excretion. This would be the end-result in fetal hemolytic anemia, and, therefore, the quantitative estimation of this hormone should be a source of guidance as to the condition of the blood of the fetus in utero. The estimation of both pregnanediol and 17-ketosteroid excretion rates was thought to be of value in estimating the fetal adrenal cortical function as well as the placental function. Progressive anemia in utero would be identified again by the fall of the excretion levels and vice versa. The hematological status of the fetus would thus be reflected.

Observations were made on mothers with Rh incompatibilities treated with cortisone. The dosage of corti-

sone was controlled by the studies of these hormones, in an effort to reduce the problem to scientific measurement rather than to vague clinical judgment.

MATERIAL AND METHODS

This study consists of the observations made on 67 women with antibody titers considered to be sufficiently high to produce erythroblastosis. All maternal titers were 1:8 or higher. The mothers usually had a history of the delivery of previous severely erythroblastotic babies. These women all received cortisone or corticotropin, and, during the period of observation, a large percentage of the mothers were studied by means of 17-ketosteroid and pregnanediol studies on the urine excreted during 24 hour test periods. These studies were made at weekly or semimonthly intervals, and they were started around the 20th week and continued until delivery. The 17-ketosteroids were estimated by means of Zimmermann's test⁵ and the pregnanediol by the Chaney-Fischer technique.⁶ Cortisone was given in doses of 100 mg. per day, 25 mg. every six hours, and where indicated the dose was increased to 150 mg., or 25 mg. every four hours day and night. If necessary, 200 mg. per day was given. The usual symptoms of mild sodium and fluid retention were occasionally observed in these women.

REPORT OF CASES

CASE 1.—This 23-year-old white woman had previously had an Rh-positive infant that died in the neonatal period from severe erythroblastosis. The present pregnancy progressed normally, and in figure 1 there is a diagram of the 17-ketosteroid and pregnanediol excretion studies made on this patient. There was a slight rise in the blocking antibody titer to 1:512 during the course of the pregnancy. The 17-ketosteroid and pregnanediol excretion rose gradually in a gentle slope during the course of the pregnancy that was finally terminated at the end of 38 weeks by cesarean section, because of a previous section. The patient exhibited edema in the last several weeks. The child was Rh negative and in perfect condition.

CASE 2.—A 28-year-old white woman had been sensitized as a result of transfusions in the past. Her first pregnancy terminated in a stillbirth after a cesarean section at seven months. Her blocking antibody titer during this pregnancy rose to 1:256. The 17-ketosteroid and pregnanediol excretion showed some tendency to improve when the patient was given 100

From Georgetown University School of Medicine and the Doctors Hospital Research Foundation.

The cortisone used in this study was provided by Dr. Elmer Alpert of Merck and Company, Rahway, N. J., and the ACTHargel by Dr. Richard J. Meyers of the Armour Laboratories, Chicago.

Members of the staff of the Oscar B. Hunter Memorial Laboratory and the Blood Grouping Laboratory, Washington, D. C., assisted in the preparation of the charts and manuscripts and in the performance of the tests.

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mg. of cortisone at the 21st week (fig. 2). In the 23rd week, however, the 17-ketosteroid level showed a tendency to fall and at the 25th week both the 17-ketosteroid and pregnanediol excretion showed a tendency to diminish. When these observations were made, the fetus was believed to have died, the 26th week. At that time no increase in dosage of cortisone was made. This case illustrates an inadequate cortisone dosage for this particular patient.

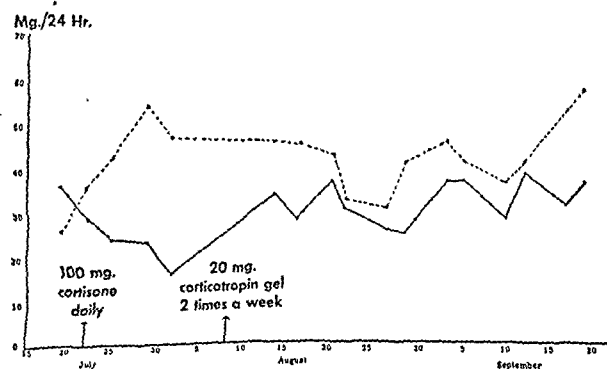


Fig. 1.—Graph showing pregnanediol (broken line) and 17-ketosteroid (solid line) excretion of normal patient receiving cortisone and corticotropin gel. Patient delivered a normal Rh-negative baby.

CASE 3.—This 32-year-old woman had had three previous pregnancies. The first child was slightly jaundiced at birth. The second baby was delivered three weeks prior to term and, in spite of repeated small transfusions, died six days after birth. The third pregnancy was terminated in an abortion at six weeks. During the present pregnancy, the patient's antibody titer rose from 1:64 to 1:512. She was given cortisone, 100 mg. daily, at the 32nd week of pregnancy and was followed with pregnanediol and 17-ketosteroid studies from that time until delivery (fig. 3). In addition to cortisone, the patient was given a 20 mg. injection of corticotropin gel on July 14 and Aug. 5. She delivered an Rh-positive baby in good condition on Aug. 17. The baby was given an exchange transfusion, and thereafter its course was uneventful.

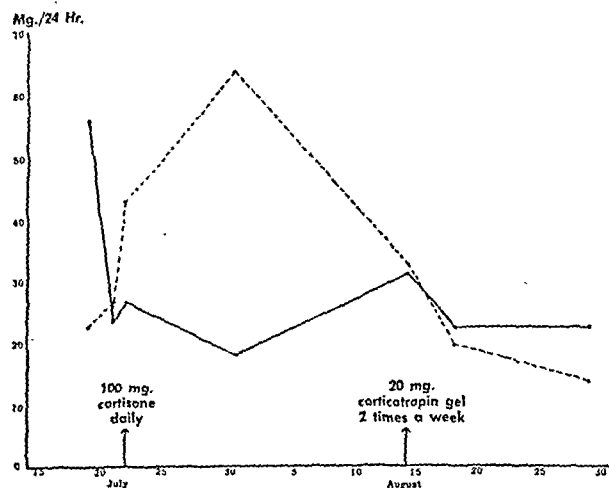


Fig. 2.—Graph showing pregnanediol (broken line) and 17-ketosteroid (solid line) excretion in patient whose baby was Rh positive and died of erythroblastosis. Cortisone dosage was inadequate.

CASE 4.—The husband of this 24-year-old, Rh-negative, white woman was homozygous for the Rh factor. In the past she had one normal child, and a second child died at three days, although an exchange transfusion was performed. The third child was born anemic, was given a transfusion, and survived. During the fourth pregnancy, there was a definitely

higher antibody titer (1:128). The prognosis was considered poor. During this pregnancy, the patient was followed with 17-ketosteroid and pregnanediol estimations, and as shown in figure 4, administration of cortisone was started at approximately the 32nd week because of the continued fall in levels. The cortisone dose administered was 100 mg. per day, 25 mg. every six hours. A rise in the 17-ketosteroid and pregnanediol levels was not observed, and consequently one week later the cortisone dosage was increased from 100 to 150 mg., 25 mg. every four hours. The patient continued to receive this dose until the 38th week at which time she was delivered by medical induction of labor. The 17-ketosteroid and pregnanediol levels were slightly lower than usual, but the early delivery was suggested in order to salvage a viable fetus. The child was delivered in excellent condition without signs of erythroblastosis. Transfusion was performed subsequently without complications. This case illustrates the advantage of 17-ketosteroid and pregnanediol estimations in controlling the dosage of the drug in order to insure that an adequate quantity of the drug is being administered to the patient.

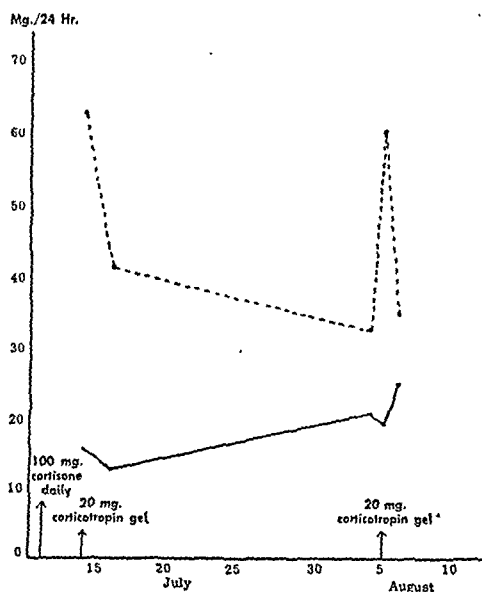


Fig. 3.—Graph showing pregnanediol (broken line) and 17-ketosteroid (solid line) excretion in patient receiving cortisone and corticotropin gel. Patient delivered an Rh-positive infant in good condition. Dosage was adequate.

Table 1 illustrates the results of the entire series of cases. From this table it can be seen that the fetal mortality rate was considerably reduced by the use of cortisone. Of particular importance is the high salvage rate of infants born of mothers who have previously had still-

TABLE 1.—Results of Cortisone Therapy on Erythroblastosis

Result of Previous Pregnancy	Result of Pregnancy During Which Cortisone Was Administered		
	Infant Lived	Infant Born Alive	Infant Stillborn
Normal infants	23 (95%)	1	..
Erythroblastic infants	14 (93%)	1	..
Miscarriages	4 (57%)	..	3
Infants stillborn or died.....	15 (71%)	3	3
Total.....	56 (84%)*	5	6

* Including 9 Rh-negative infants.

births or neonatal deaths. Of these severely affected, there still remains a small percentage of infants (16%) who will die either in utero or in the neonatal state in spite of cortisone therapy. The administration of cortisone reduced the 17% of stillbirths and 10% of deaths not salvageable by exchange transfusion.

Table 2 is an outline of the histories of all mothers who had babies dying as the result of erythroblastosis in a previous pregnancy and the results of a subsequent pregnancy during which cortisone was given in the last trimester. It is important to observe that, prior to the use of cortisone, we had never seen an Rh-positive child born alive of a mother who had previously had a stillbirth.

COMMENT

From these observations, it is evident that pregnanediol and 17-ketosteroid estimations on 24 hour urine specimens give considerable information as to the status of the fetus in utero. It is believed that they reflect placental and fetal adrenal cortical function. These observations, when considered in the light of the Rh antibody titers of the patients, enable the observer to determine when the infants are embarrassed in utero. With anemia there is a fall in the hormone excretion levels. We have been successful in predicting the death of the babies by this fall. In some instances, however, we have been led astray by a hydropic placenta that produces a high pregnanediol content, but on reconsideration the fall of 17-

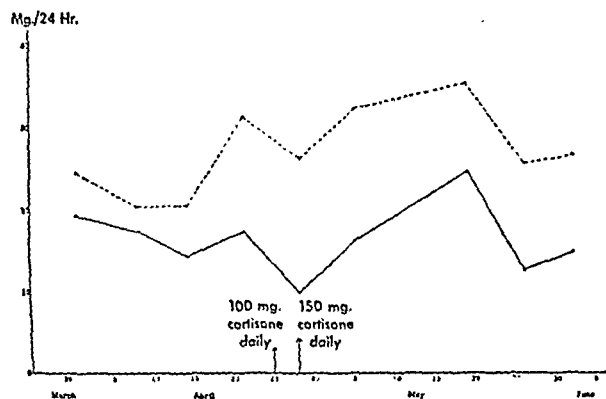


Fig. 4.—Graph showing pregnanediol (broken line) and 17-ketosteroid (solid line) excretion in patient receiving cortisone. Dosage at first, 100 mg. per day, was inadequate.

ketosteroid excretion should have given some indication of the poor status of the infant. With these chemical observations, it is possible to regulate the dosage of cortisone given to the mother. The cortisone administered must be transmitted to the child in order to inhibit the hemolytic activity. There has been associated clinical, as well as laboratory, evidence of improvement of the fetus. Fetal improvement has been observed by the mother and obstetrician correlating with use of the 17-ketosteroid and pregnanediol excretion levels observed in the laboratory. Cases 14 and 15 in table 2 are typical examples of this. Both activity and fetal heart tones improved with therapy.

There still remains a small percentage of infants (16%) who will die in utero or in the neonatal state. Cortisone therapy will reduce by 71% the 17% of stillbirths and the 10% of deaths not preventable by exchange transfusion.

In table 2, it should be noted that two of the three women who had stillbirths were treated with cortisone for less than two weeks. Two of the three infants that were born alive and later died were born of mothers whose previous infants were stillborn. Both babies were severely

erythroblastic. Both showed considerable clinical improvement while receiving therapy, but both were delivered prior to the expected date when larger doses of cortisone were to have been given. Further analysis of table 2 contrasts strikingly the change in outcome associated with cortisone therapy. Seven out of eight babies survived after cortisone therapy, whereas their siblings had died in the neonatal period. Two of these were Rh negative. Thirteen patients with a history of previous stillbirth subsequently delivered 10 live babies, 2 of which died in the neonatal period. Only one survivor was Rh negative. The relatively high red blood cell counts noted were encouraging, and, even when the count was as low as 3 million per cubic millimeter, the babies appeared in excellent condition.

TABLE 2.—Present and Previous Pregnancies in Women (Other Than Those Reported on in Text) Receiving Cortisone

Case	No. of Previous Pregnancies	Condition of Infant of Preceding Pregnancy	Albumin Anti-body Titer	Present Pregnancy		Red Blood Cells, Million per 100 MI.
				Time Cortisone Received	Condition of Newborn	
1	2	Died after 3 days	1:8	3 weeks	OK *	3.87
2	3	Died after 12 hr.	1:512	2 mo.	OK *	4.60
3	2	Stillborn	1:512	2 weeks	Stillborn, 8 mo	....
4	1	Died after 2 days	1:16	1 mo.	OK, Rh negative	5.50
5	3	Hydrops, died	1:1000	1 mo.	OK *	5.02
6	2	Died after 3 days	1:32	1 mo.	OK *	3.30
7	2	Stillborn	1:256	12 days	Stillborn, 5 mo.	....
8	3	Stillborn	1:32	3 mo.	OK *	4.50
9	3	Died after 2 days	1:32	1 week	Died *	2.21
10	3	Stillborn	1:32	3 mo.	OK *	5.26
11	2	Stillborn	1:256	2 mo.	OK *	3.80
12	3	Died after 6 days	1:512	8 weeks	OK *	2.96
13	1	Died	1:512	9 weeks	OK, Rh negative	....
14	5	Stillborn	1:32	2 mo.	Died *	1.65
15	7	Stillborn	1:8	1 mo.	Died *	1.10
16	3	Stillborn	1:64	3 mo.	OK *	3.39
17	5	Stillborn	1:128	6 weeks	OK, Rh negative	....
18	2	Stillborn	1:1024	14 weeks	Stillborn	....
19	4	Stillborn	1:512	1 mo.	OK *	3.18
20	2	Stillborn	1:128	20 days	OK *	2.31
21	2	Stillborn	1:64	8 mo.	OK *	3.32

* Infant received exchange transfusion.

The exact nature of the method of function of cortisone is not entirely clear. In these cases, the results of the Coombs' test on the newborn infant is positive if the child is Rh positive. This, therefore, indicates that, in spite of the cortisone, a union of antigen and antibody has occurred, but, unlike the usual condition, the antigen-antibody complex does not result in hemolysis. Theoretically, perhaps, there is an inhibition by the corticoids of the hemolytic mechanism blocking the action of complement. This is entirely theoretical, and we have not been able to make observations to prove that this particular hypothesis is either true or false.

There appeared to be variables other than adrenal cortical function, since a few infants died in spite of the cortisone therapy. It nevertheless seems to be a valid conclusion that the cortisone does have a very definite effect

in the great majority of cases. The dosage of cortisone usually used has been 25 mg. every six hours. This dosage should be begun either before the death of the fetus, as predictable by previous pregnancies, or when there is some evidence of fall in the 17-ketosteroid and pregnanediol excretion. This latter method is much more accurate and much more effective and is the only method we have used in the last 30 cases. We initially observed the 17-ketosteroid and pregnanediol levels around 20 weeks and followed this level at semimonthly intervals until there was some indication of fall or until the 24th week. Thereafter, these levels were observed weekly, and, if there was a poor progression, cortisone therapy was initiated. If, during cortisone therapy, either the 17-ketosteroid or the pregnanediol excretion tends to fall or does not continue to rise, an increase in dosage is initiated; namely, 150 mg. a day or 25 mg. every four hours, day and night. This latter dose seems to be a satisfactory one for almost all patients. Occasionally, 200 mg. may be necessary.

Toxic effects other than edema were minimal. Every patient required restriction of sodium. Once it was necessary to hospitalize the mother because of polyhydramnios before initiating cortisone therapy. Growth of hair and striae were exaggerated by the treatment in a few instances. One mother had an acneform eruption on the

chest when the cortisone dosage was increased to 150 mg. daily. This disappeared when the dosage was reduced to 100 mg. No psychosis or undue depression was noted, in fact, most women felt improved while receiving the therapy. In the newborn, there is occasionally an increase in fluids as evidenced by the weight loss in the first few days. This has never constituted an unusually difficult problem.

SUMMARY

The normal rise of 17-ketosteroid and pregnanediol levels in the urine during pregnancy may be used as a means of following the course of the fetus of the Rh-negative mother with a high antibody titer. Administration of cortisone should be started when the normal progression of these hormones falters. Twenty-five milligrams of cortisone every six hours is sufficient dosage at the start. The dosage may be increased if the hormone level does not continue to rise. The newborn child may be expected to lose a small amount of weight. An exchange transfusion is usually necessary to complete the therapy of the newborn infant. This therapy reduced the mortality rate of babies born alive from 10%, with exchange transfusion alone, to 3%. The incidence of stillbirths was reduced from 17% to 5%.

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IMPROVED FERTILITY AND PREVENTION OF ABORTION AFTER NUTRITIONAL-HORMONAL THERAPY

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and

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The causes of functional infertility are obscure and elusive. Those of abnormal pregnancy and habitual abortion are no less so. Many factors of nutritional and endocrine significance may be involved, but thus far these have been loosely defined and so remain in a rather confused state.

We postulate that many cases of functional infertility and abortion may result from errors in sex hormone metabolism associated with variable degrees of nutritional and hepatic insufficiency. This concept is based on abundant evidence from investigators in the field of nutrition¹ and from workers investigating the influence of the liver on sex endocrine function.² Previous observations clearly

relate liver damage with gonadal damage.* These clinical and experimental data tend to support the idea that liver-gonadal syndromes may be associated with infertility. Hepatic insufficiency is frequently the cause of the following sex organ changes: in men, testicular damage, gynecomastia, impotence, and infertility; in women, ovarian dysfunction, menstrual disorders, cyclomastopathy, and infertility.

Good nutrition and normal liver function are synonymous. Deficiency of either one is usually followed by some reciprocal effect on the other. Likewise any significant chronic deficiency of nutrition and/or liver function reflects unfavorably on reproductive physiology. These nutritional-liver-hormonal inter-relationships are in harmony with the postulate of the interdependence of enzymes, hormones, and vitamins as expressed by Harrow⁴: "These are not separate entities, each going its own way, but all three are intimately related to one another with a cooperative plan so delicately handled together that a failure of any one of them to act immediately upsets the dynamic equilibrium of the body as a whole, resulting in pathological symptoms or disease." It is difficult to prove whether minor and subclinical nutritional and hepatic deficiencies of long duration depress fertility, because of insensitive laboratory tests for the detection of such deficiencies. Histories of dietary intake by patients are no-

From the Fertility Clinic, Cedars of Lebanon Hospital, Los Angeles. This study was aided in part by the Barnett Estate.

Read before the Section on Obstetrics and Gynecology at the 102nd Annual Meeting of the American Medical Association, New York, June 2, 1953.

The special vitamin supplement capsules used in this study were supplied by the Marlyn Company of Los Angeles. The progesterone macrocrystals were supplied by Ciba Pharmaceutical Products, Inc. The progesterone in oil was supplied by the Chemical Specialties Company, New York, and the Galen B was supplied by White Laboratories, Inc., Kenilworth, N. J.

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toriously unreliable, especially those obtained from clinic populations. Since a substantial number of our patients are former inmates of Nazi concentration camps, however, malnutrition was a conspicuous feature of their past history. Moreover, a minority of our subjects showed abnormal or borderline abnormal results of liver function tests.

Biskind,⁶ among many others, believes that suboptimal as well as frank nutritional deficiency is more widespread than is commonly suspected or diagnosed. More critical clinical study including dietary inventory and tests of liver function must be carried out on every infertile couple to reveal these potential deficiency factors. The nutritional regimen proposed here is designed to provide a superabundance of protein, liver, and naturally occurring vitamin B complex foods; it is designed to enhance liver function as well as the over-all nutritional state.

Our nutritional regimen provides the broadest spectrum of foods rich in protein and B complex value. Because each supplement contains some substances, known and unknown, not contained in the other, the sum total of these foods provides infinitely more real value than synthetic mixtures, again emphasizing that the "whole is greater than the sum of its parts." Long-term use of this nutritional regimen seems necessary to overcome what appears to be a refractory state of the reproductive system in many cases of functional infertility.

In our opinion preliminary nutritional improvement constitutes a necessary prerequisite for use of sex hormone supplements. It is analogous to fertilizing the soil prior to the planting of seeds on the logical assumption that such a fertilized soil will, so to speak, produce better crops or improved gametogenesis in infertile subjects. If such a regimen is essential to stabilize sex hormone metabolism in infertile patients, it is even more important to those who achieved pregnancy, especially women who have experienced abortion or miscarriage.

METHOD

A group including 22 men and 50 women was studied according to the minimal standards laid down by the American Society for the Study of Sterility. In addition, a battery of liver function tests were routinely carried out.* Of the 50 infertile women, 34 were nulliparous and 6 had become infertile for a variable number of years after having from one to three children. Of 10 who had aborted two or more consecutive pregnancies, 4 had become infertile. The duration of infertility in these 50 women varied from 2 to 16 years. Endometrial premenstrual biopsy specimens were proliferative in 4 patients and mixed or hypoplastic in 33 patients. Endocervicitis was present in 5 women, and 14 had impaired or borderline abnormal liver function.

These patients were then provided with an optimum dietary including food supplements of the following specifications: (1) optimal caloric intake (designed to reduce weight if necessary), (2) protein content of 1.5 to 2 gm. per kilogram of body weight, (3) vitamin A content of 25,000 to 50,000 units, and (4) foods rich in protein and vitamin B complex, such as liver (edible, or desiccated whole liver), 30 cc. of rice bran extract (Galen B), 60 to 90 gm. of brewer's yeast flakes, and 30 to 60 gm. of wheat

germ. To insure the patient's long-term cooperation, palatable recipes should be provided for his use. To further enrich the diet in urgent cases or to provide a temporary substitute for the crude supplements that may not be well tolerated by some patients special capsules are being prescribed. These capsules incorporate concentrates of brewer's yeast, whole liver, vitamins A and B complex, and mixed tocopherols in a ratio that is roughly analogous to the crude supplements. After 30 to 60 days of this nutritional regimen, sex hormones were prescribed in the following schedules: 1. Men were provided with testosterone propionate, 50 mg. intramuscularly every other day until a total of 500 mg. was given. 2. Women were provided with oral estrogen and buccal progesterone therapy in the following schedule: estrogen, 0.25 to 2.5 mg. daily during days 5 to 25 of the menstrual cycle, and progesterone, 20 to 40 mg. daily during days 15 to 25 of the cycle. This was usually continued for from 3 to 6 cycles with decreasing estrogen dosage and after a lapse of one or 2 cycles was resumed for another trial period of from three to six months if necessary. 3. Women who had aborted repeatedly or who had become infertile after having one or more children were pro-

TABLE 1.—Comparison of Nutritional and Hormonal Therapy and Hormonal Therapy Alone for Infertility in Women

No. of Patients	Previous Status	No. Who Achieved Pregnancy	No. Who Aborted
NUTRITIONAL AND HORMONAL THERAPY			
34	Nulliparous	19 (56%)*	3 (16%)
10	Aborted	8 (80%)	2 (20%)
6	Multiparous	4 (67%)	1 (20%)
HORMONAL THERAPY ALONE			
31	Nulliparous	5 (16%)	0

* Statistically significant ($t = 3.32$).

vided with the same combined regimen as the nulliparous subjects for a variable number of months before pregnancy was achieved. During their pregnancy progesterone was prescribed in doses of 100 mg. of macrocrystals intramuscularly every 5 to 10 days, or 125 mg. in oil intramuscularly every other day. When injections could not be taken, buccal tablets of progesterone in doses of 40 to 60 mg. daily were substituted.

RESULTS

Fertility, with resultant pregnancy, was restored to 19 of 34 nulliparous women and also to 4 of 6 infertile multiparous women (table 1). Four of these 23 subjects

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* The liver function tests were usually determination of sulfobromophthalein (Bromsulphalein) secretion, cephalin flocculation, thymol turbidity, and glycogen storage (Kinsell).

aborted the pregnancy. Of the 10 women who had experienced two or more consecutive abortions, 8 had normal babies. Of the 22 sterile men, 15 experienced improved spermatogenesis followed by pregnancy in 10 wives, one of whom aborted (table 2). No pregnancy followed treatment of the five men with testicular atrophy. The favorable results were attained in variable periods of time, ranging from 4 to 22 months with an average of over 9 months in both sexes. Significantly, most of the patients experienced marked improvement in general health in addition to improved fertility.

COMMENT

Chance expectation may well account for some of the favorable results, but in our previous experience with hormonal therapy alone few cures were obtained. Moreover, with the chi-square method of comparison the results obtained with the combined nutritional and hormonal therapy with those obtained after hormonal therapy alone, it is apparent in tables 1 and 2 that significantly

TABLE 2.—Comparison of Results of Nutritional and Testosterone Therapy and Gonadotropic Therapy Alone in Men

No. of Patients	Previous Status	No. with Improved Spermatogenesis	No. with Pregnancy in Wives
NUTRITIONAL AND TESTOSTERONE THERAPY			
17	Oligospermia (10 to 30 m./cc.)	15 (88%)	10 (59%) *
6	Oligospermia with atrophy (1.0 to 5 m./cc.)	2 (40%)	0
GONADOTROPIC THERAPY ALONE			
10	Oligospermia †	4 (40%)	1 (10%)
35	Oligospermia ‡	23 (64%)	5 (14%)

* Statistically significant ($t = 3.38$).

† Glass, S. J., and others: Therapeutic Trials with Chorionic and Pituitary Gonadotropins in Seminal Deficiencies, *Tr. Am. Soc. Study Steril.*, 1947.

‡ Heekel, N. J., and McDonald, J. H.: Rebound Phenomenon of Spermatogenic Activity of Human Testis Following Administration of Testosterone Propionate, *Fertil. & Steril.* 3: 49-61, 1952.

better responses followed the combined regimen. Thus it is seen that the number of pregnancies achieved by the women in group A is higher than that in group B ($t = 3.32$). Likewise the number of pregnancies that followed the combined therapy in the men of group A was significantly higher than that which followed either gonadotropic (group C) or testosterone (group D) therapy exclusively ($t = 3.38$). The favorable responses that follow the combined treatment suggest that our "total push" regimen is a more logical approach to the problem of infertility.

Though much of the regimen may be empirical, the treatment does anticipate the need for optimum levels of nutritional and hormonal substances essential to fertility. It is suggested that prolonged saturation with the beneficial food supplements, inherent in the nutritional regimen, renders the entire reproductive system more responsive to endogenous as well as exogenous sex hormones so that gametogenesis progresses to full and efficient maturation. What may be lacking in many cases of functional infertility are the factors that stimulate the final phase of spermatogenesis and ovulation.

Study of the majority of our patients usually revealed, as do most other studies, not outright failure of gametogenesis, but rather less serious degrees of failure as shown

by (a) spermatogenic arrest or hypospermatogenesis and (b) premenstrual endometrium of mixed or hypoplastic secretory character. Such functional deficiencies suggest that there is inadequate stimulation or that unknown factors are lacking for the efficient completion of the cycle of gametogenesis. The favorable responses observed in this study suggest that the abundant nutritional regimen together with the supplements of sex hormones provide the added stimulus essential to normal gametogenesis and normal fertility. These results warrant further trials with the combined nutritional and hormonal therapy by all interested clinical investigators, at least until better or more specific treatment becomes available.

SUMMARY AND CONCLUSIONS

A combined nutritional and hormonal regimen was applied in the management of 22 men and 50 infertile women. No apparent organic basis was evident in the sex organs. A minority of the patients had a history of malnutrition and manifested some impairment of liver function. After an average of nine months of treatment, 19 of the 34 nulliparous women achieved pregnancy, 2 of whom aborted. Of the six infertile women who had borne one or more children four attained pregnancy again but one of these aborted. Of the 10 who had aborted previously, 8 achieved normal full-term pregnancy.

Of the 17 men with moderately severe oligospermia, 15 had improved spermatogenesis followed by pregnancy in 10 of their wives, one of whom aborted. Of five men with severe oligospermia associated with testicular atrophy, only two showed some improvement in spermatogenesis without pregnancy in their wives. These favorable results are better than those of chance expectation or those obtained with nutritional or hormonal therapy alone. It is suggested that the combined regimen proposed here provided the added stimulus essential to normal fertility.

360 N. Bedford Dr. (Dr. Glass).

Proteolytic Enzymes.—Streptokinase-streptodornase and crystalline trypsin are extremely valuable adjuncts in the management of . . . wounds complicated by necrosis and infection. Their use is not a substitute for surgical débridement. Whenever foreign material is contained within a wound, cure should not be anticipated until the foreign material is removed. . . . Osteomyelitis involving cancellous bone primarily is improved, or arrested temporarily, but relapses occur frequently because of inability to obtain contact of the enzymes with the multiple localized abscesses prone to develop in cancellous bone. Streptokinase-streptodornase appears to produce better results than trypsin in deep-seated wounds with multiple sinuses. Streptokinase-streptodornase administered in fresh operative wounds causes continued mild bleeding. The authors have not found this a cause for concern. Trypsin acts more rapidly and is more effective in surface wounds. Both streptodornase-streptokinase and trypsin are of practical benefit because of their ability to digest necrotic tissue, thereby cleaning wounds, and making less favorable media for the growth of bacteria. In some instances enzymatic débridement alone has been sufficient for healing. In others it has cleaned the wounds preparatory to definitive surgical intervention. These agents have not been observed to affect living tissue except by causing skin irritation.—Col. A. W. Spittler and R. E. Parmenter, *The Use of Proteolytic Enzymes in War Wounds*, *The Journal of the International College of Surgeons*, January, 1954.

CLINICAL NOTES

TREATMENT OF HERPES ZOSTER WITH CORTISONE

Maxwell L. Gelfand, M.D., New York

The demonstration by Hench and his co-workers¹ in 1949 that cortisone exerts a dramatic effect on rheumatoid arthritis marked the beginning of a new approach in the field of therapeutics. At first, it was thought that this steroid, as well as corticotropin (ACTH), was specific for a certain group of conditions, but it soon became apparent that these hormones exerted an effect on a number of disparate diseases. A considerable amount of experimental evidence has accumulated to indicate that these drugs have a widespread action, influencing the metabolic and physiological function of many tissues and organs. Their clinical applicability would therefore seem to be inexhaustible, and the list of diseases for which they are being employed continues to grow. Although steroid therapy has been used in the ocular complications following herpes zoster ophthalmicus,² there has been no report concerning the effect of cortisone on herpes zoster, hence this preliminary report.

METHOD OF TREATMENT

Five patients, four women and one man, ranging in ages from 32 to 72 years, with severe acute herpes zoster were treated with cortisone administered orally. They were given 200 mg. the first day in four divided doses, followed by 100 mg. daily for seven days. Thereafter the

TABLE 1.—Condition of Patients with Herpes Zoster Before Cortisone Therapy*

Age, Yr.	Sex	Duration of Disease, Days	Location	Associated Condition	Complications of Disease
32	M	2	Lumbar and sciatic	None	None
52	F	3	Thoracic	None	None
72	F	7	Ophthalmic	Chronic lymphatic leukemia	Uveitis and conjunctivitis
68	F	2	Ophthalmic	None	Uveitis and conjunctivitis
72	F	4	Thoracic	Hypertensive heart disease	None

* In all patients the severity of pain and the extent of eruption were graded 4+.

dose was reduced to 25 mg. twice daily for four days. In addition, the two patients with ophthalmic involvement received cortisone administered locally by instillation. The classic symptoms of shingles were present in all patients: the triad of systemic manifestations of a general infective disorder, typical radicular pain, and character-

istic herpetic lesions. In two patients the eruptions were distributed unilaterally over the thoracic region, in one the lumbar and sciatic area was affected, and in two patients the supra-orbital site showed these lesions. Except for a slight hypertensive condition in one patient, none of the contraindications to the use of cortisone, such as diabetes, latent tuberculosis, a previous major psychotic episode, congestive heart failure, recent occurrence of thromboembolism, a deep-seated pyogenic infection, or an urgent need of surgical treatment, were present. All

TABLE 2.—Results of Cortisone Therapy*

Time Required for Relief of Pain, Hr.	Time of Clearing of Eruption	Relapses	Relief of Complications
24	6th day	None	.....
30	7th day	None	.....
No effect	3rd week	.....	Some improvement
24	4th day	None	Uveitis and conjunctivitis cleared
30	7th day	Rebound effect	.....

* None of these patients had any side-effects from cortisone.

patients were observed twice weekly in order to evaluate the degree of improvement in each and to detect any signs of undesirable side-effects from prolonged therapy with cortisone.

RESULTS OF TREATMENT

Dramatic relief of pain occurred within 24 to 36 hours in four of the five subjects treated. The patient with chronic lymphatic leukemia failed to respond to therapy. The skin eruption did not progress in any of the patients nor were there any evidences of secondary infection. The course of healing of the superficial lesions continued in the usual manner, requiring from one to three weeks. The uveitis and conjunctivitis that characterized the ophthalmic form of herpes zoster cleared rapidly in one patient, but the improvement was somewhat less spectacular in the patient who had leukemia (table 2). In one instance, pain returned one week after cessation of treatment. However, upon reinstitution of therapy with 100 mg. of cortisone, in four divided doses daily for one week, the pain was permanently abolished. No complications or sequelae were observed unless the relapse mentioned could be considered as an instance of post-herpetic neuralgia. This is very unlikely, since the condition cleared so quickly after an additional week of cortisone therapy. As a rule, post-herpetic neuralgia continues for a very long time and is extremely painful. This manifestation should be regarded as a rebound phenomenon not infrequently seen in steroid therapy. Despite the extensive and severe involvement, all patients felt so well that they were able to continue their usual work. None of the usual signs of undesirable metabolic or physiological disturbances, such as a gain in weight, glycosuria, alkalosis (as measured by the carbon dioxide content of the blood), or hypopotassemia (as seen in the electrocardiogram), were present.

COMMENT

Herpes zoster, commonly known as shingles, is an acute infectious disease of viral origin affecting the nervous system and manifested by secondary cutaneous changes. Although the condition is essentially benign and

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followed by spontaneous recovery, it carries with it a high degree of morbidity in the elderly age group. In addition, complications have been observed, some of which are irreversible. Post-herpetic neuralgia, the most frequent and rather common aftereffect, is particularly distressing. Encephalitis, a rare sequela, may prove fatal, while in the ophthalmic variety loss of vision is far from uncommon. Paralysis of the upper as well as lower motor neurons is also a complication occasionally observed in this disease.

There is no specific treatment for herpes zoster or any of its complications. Innumerable remedies have been suggested, and, at different times, a variety of agents have enjoyed popularity. The use of analgesics and vaccines, injections of procaine, x-ray radiation and administration of thiamine hydrochloride (both orally and parenterally), vitamin B₁₂, Protamide (colloidal solution of a proteolytic enzyme), and the newer antibiotics (chlortetracycline [Aureomycin] and chloramphenicol) have all had their proponents. In the older group of patients with extensive involvement, however, all these modalities of treatment have been found wanting for the adequate relief of the excruciating pain experienced by patients in the acute stage of the disease and of the discomfort caused by the post-herpetic neuralgia or other sequelae.

The mechanism by which cortisone exerts its beneficial effect is by no means well known. The drug alters in some mysterious way certain reactions of the tissues to adverse stimuli. While it is incapable of destroying pathogenic organisms or directly influencing toxins, allergens, or other noxious agents, it definitely can suppress inflammation, whether allergic, infectious, or nonspecific in origin. This latter property, however, may be contraindicated in some instances. Under conditions in which the inflammation is detrimental to the body, the administration of cortisone results in improvement, whereas under circumstances in which the inflammatory process represents a participation in the body's defense against micro-organisms, harm results from its use. Cortisone itself exerts no curative action but, when used in responsive conditions that are naturally self-limited, it may check the pathological process while the disease runs its course.

A number of infections of either bacterial, viral, or parasitic origin have shown considerable clinical improvement when cortisone is employed, either alone or in conjunction with antibiotics. Smadel, Ley, and Diercks⁴ administered cortisone in addition to chloramphenicol to eight patients with typhoid. They found a more marked amelioration of the acute symptoms after

therapy with the combination than after the administration of the antibiotic alone. Woodward and his co-workers⁵ treated seven typhoid patients with cortisone alone and found that in six patients a marked defervescence occurred while the condition remained unchanged in the seventh. Numerous authors have reported considerable success in the treatment of ulcerative colitis with cortisone. Reeder and Mackey⁶ noted a favorable response in several cases of bacterial pneumonia treated with cortisone administered by nebulization. The Waterhouse-Friderichsen syndrome, often seen in fulminating meningococcemia, has shown a dramatic response when cortisone is added to other medicaments used in treatment. Boling and his associates⁷ have given cortisone in conjunction with appropriate chemotherapy to six patients with severe peritonitis, and in all patients an immediate reduction or disappearance of signs of systemic toxicity was noted. Michael⁸ administered cortisone to seven patients with mumps orchitis and found that the pain and fever disappeared more rapidly than was expected. Trichinosis was also favorably influenced when treated with cortisone. The toxicity and clinical course of Rocky Mountain spotted fever were more markedly alleviated by a combination of cortisone and chloramphenicol than by the antibiotic alone.⁹ Thus there is sufficient proof to indicate that cortisone has a place in the treatment of acute infectious diseases.

The favorable response noted above in four of five patients with severe herpes zoster treated with cortisone has real significance despite the fact that this is but a small group. The majority of those treated were between 50 and 70 years of age, and in addition the condition of two patients was complicated by ophthalmic involvement. It is well known that the effect of herpes zoster in the aged is considerably severer than in the young and that the incidence of complications is much higher in the former group. When the virus attacks the eye, loss of vision is not uncommon. It is quite possible that the local instillation of cortisone supplementing the oral route of administration was of some value in obviating serious ocular damage. In the patient with chronic lymphatic leukemia and herpes zoster ophthalmicus, who did not respond systemically to cortisone, some improvement was evident in the uveitis and conjunctivitis. Thus, the preservation of sight in both instances may well have been due to the use of cortisone.

It is well known that cortisone can mask the development of a new infection and prevent the detection of its progress by suppressing the cardinal signs and symptoms. This property has been offered by many as an argument against the use of the drug in serious infections. However, when short courses of steroid therapy are employed and the patient is carefully supervised with constant attention to the signs in the abdomen and chest, checked frequently by fluoroscopic examinations, such concealment can be avoided. Thus it appears that a brief course of cortisone therapy is useful in the treatment of severe and extensive herpes zoster since it shortens the acute phase, diminishes the intense pain, and reduces the incidence of complications. It should be reserved for patients in the older age group and those failing to respond to the conventional method.

60 Gramercy Park (10).

3. Deleted on proof.

4. Smadel, J. E.; Ley, H. L., Jr., and Diercks, F. H.: Treatment of Typhoid Fever: I. Combined Therapy with Cortisone and Chloramphenicol, *Ann. Int. Med.* 34: 1, 1951.

5. Woodward, T. E., and others: Treatment of Typhoid Fever: II. Control of Clinical Manifestations with Cortisone, *Ann. Int. Med.* 34: 10, 1951.

6. Reeder, W. H., and Mackey, G. S.: Nebulized Cortisone in Bacterial Pneumonia, *Dis. Chest* 18: 528, 1950.

7. Boling, L., and others: Use of ACTH and Cortisone in Management of Acute Abdominal Emergencies, read before the Association for the Study of Internal Secretions, Atlantic City, N. J., June 9, 1951, abstracted in *J. Clin. Endocrinol.* 11: 799, 1951.

8. Michael, M., Jr.: *Monographs in Medicine*, Series I, edited by Bean, W. B., and others, Baltimore, Williams & Wilkins Company, 1952, p. 256.

9. Workman, J. B., and others: Cortisone as Adjunct to Chloramphenicol in Treatment of Rocky Mountain Spotted Fever, read before the Southern Society for Clinical Research, Atlanta, Ga., Jan. 19, 1952, abstracted in *Am. J. Med.* 13: 653, 1952.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following product has been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Armour and Company, Chicago, packer.

Gerber Products Company, Fremont, Mich., distributor.

Gerber-Armour Strained Beef with Beef Hearts.

This product is made from meats (trimmed of fat, sinews, and connective sheaths) with added salt, prepared under inspection of the Meat Inspection Division of the U. S. Department of Agriculture.

Analysis (submitted by manufacturer).—Total solids 18.9%, moisture 81.1%, ash 0.9%, fat 4.6%, protein 13.4%, crude fiber less than 0.5%, carbohydrate (by difference) none, and salt 0.4%.

Vitamins and Minerals	Mg./100 Gm.
Thiamine.....	0.0215
Riboflavin.....	0.410
Niacin.....	8.49
Pyridoxine (Vitamin B ₆).....	0.102
Calcium.....	12
Phosphorus.....	186
Iron.....	8

Calories.—0.98 per gram; 27.8 per ounce.

Use.—In the feeding of infants, convalescents, and others requiring a soft diet.

The following products containing non-nutritive artificial sweeteners intended for use in low carbohydrate, low sodium, and other therapeutic diets have been accepted as conforming to the rules of the Council. Data regarding composition represent the best available information. The company has agreed to make continuing analytical studies, especially of the sodium content, in order to make available information concerning the extent of natural variations in composition.

JAMES R. WILSON, M.D., *Secretary.*

Richmond-Chase Company, San Jose, Calif.

Diet-Delight Brand Special Dietetic Pack Apricots, Halves, Unpeeled

This product consists of apricots, Blenheim variety, packed in water with addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 9.6%, moisture 90.4%, ash 0.4%, fat 0.05%, protein 0.5%, available carbohydrates (total sugar as invert) 5.4%, carbohydrates (by difference) 8.2%, crude fiber 0.4%, sodium 4.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.08%.

Calories.—0.24 per gram; 6.8 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

Diet-Delight Brand Special Dietetic Pack Royal Anne Cherries

This product consists of Royal Anne Cherries packed in water with the addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 12.5%, moisture 87.5%, ash 0.4%, fat 0.05%, protein 0.7%, available carbohydrates (total sugar as invert) 8.4%, carbohydrates (by difference) 11.1%, crude fiber 0.2%, sodium 4.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.07%.

Calories.—0.37 per gram; 10.5 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

Diet-Delight Brand Special Dietetic Pack Kadota Figs

This product consists of Kadota Figs packed in water with the addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 14.0%, moisture 86.0%, ash 0.3%, fat 0.2%, protein 0.6%, available carbohydrates (total sugar as invert) 12.4%, crude fibers 0.6%, sodium 4.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.07%.

Calories.—0.56 per gram; 15.9 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

Diet-Delight Brand Special Dietetic Pack Fruit Cocktail

This product consists of peaches, pears, grapes, pineapple, and artificially flavored and colored cherries (Maraschino type), packed in water with the addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 10.1%, moisture 89.9%, ash 0.2%, fat 0.06%, protein 0.4%, available carbohydrates (total sugar as invert) 6.7%, carbohydrates (by difference) 9.0%, crude fiber 0.4%, sodium 4.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.07%.

Calories.—0.29 per gram; 8.3 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

Diet-Delight Brand Special Dietetic Pack Yellow Cling Peaches (Halves)

This product consists of peaches packed in water with the addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 8.5%, moisture 91.5%, ash 0.3%, fat 0.02%, protein 0.4%, available carbohydrates (total sugar as invert) 5.2%, carbohydrates (by difference) 7.6%, crude fiber 0.2%, sodium 4.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.07%.

Calories.—0.23 per gram; 6.5 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

Diet-Delight Brand Special Dietetic Pack Yellow Cling Peaches (Sliced)

This product consists of peaches packed in water with the addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 8.5%, moisture 91.5%, ash 0.3%, fat 0.02%, protein 0.4%, available carbohydrates (total sugar as invert) 5.2%, carbohydrates (by difference) 7.6%, crude fiber 0.2%, sodium 5.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.07%.

Calories.—0.23 per gram; 6.4 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

Diet-Delight Brand Special Dietetic Pack Bartlett Pears (Halves)

This product consists of pears of the Bartlett variety packed in water with the addition of cyclamate sodium (Sucaryl).

Analysis (submitted by manufacturer).—Total solids 8.2%, moisture 91.8%, ash 0.2%, fat 0.08%, protein 0.2%, available carbohydrates (total sugar as invert) 5.3%, carbohydrates (by difference) 7.0%, crude fiber 0.7%, sodium 4.0 mg./100 gm., and cyclamate sodium (Sucaryl) 0.07%.

Calories.—0.23 per gram; 6.4 per ounce.

Use.—In low calorie, low sodium, and other therapeutic diets.

THE JOURNAL

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ADRENALECTOMY FOR SEVERE HYPERTENSIVE VASCULAR DISEASE

The role of the adrenal in human hypertension has not been clearly defined. That it plays a part in maintenance of normal blood pressure and may play a part in production of hypertension is suggested by some experimental and clinical evidence. Goldblatt found that total adrenalectomy interfered with experimental renal hypertension unless adequate supportive and substitution therapy was given. He assumed that the adrenal glands might play an accessory role. The primary mechanism of nephrogenic hypertension seems to be renal anoxia, with liberation of renin, interaction of renin and a substrate or activator, and formation of a pressor substance (named angiotonin by Page and hypertensin by Houssay). The depressor effect of adrenalectomy in the Goldblatt experiments probably resulted from development of a deficiency state that in turn caused alteration of the peripheral vascular resistance so that maintained increase of blood pressure could not occur.

Clinical evidence of a relationship between the adrenal cortex and maintenance of normal blood pressure or hypertension is suggested by the hypotension of adrenal cortical hypofunction and the hypertension in adrenal cortical hyperfunction. The blood pressure of patients with essential hypertension in whom adrenal insufficiency develops may revert to normotensive levels. In patients with Addison's disease given large doses of desoxycorticosterone acetate hypertension may develop. Selye, Heinbecker, and others have advanced concepts of neurohumoral mechanisms by which repeated stress (alarm reaction) or abnormal function of the hypothalamus and the pituitary gland might cause adrenal hyperfunction; however, most patients with hypertensive vascular disease do not have signs or symptoms of adrenal hyperfunction or tumor.

The adrenal medulla secretes at least two substances capable of producing hypertension. Of these two, epinephrine increases cardiac output and peripheral vascular resistance, while arterenol (nor-epinephrine) acts

primarily by increasing peripheral resistance and has little effect on the heart. These two substances are responsible for the persistent, fluctuating, or paroxysmal hypertension of pheochromocytoma. Studies of these and other pressor amines have not yet established them as important in the usual forms of human hypertension. Removal of the medulla of the adrenal gland does not alter experimental renal hypertension; nor does removal alter Heyman's experimental neurogenic hypertension produced by section of the depressor nerves. Adrenal denervation and splanchnicectomy also fail; thus total sympathectomy is necessary.

The fact that administration of corticotropin aggravated hypertensive cardiovascular disease was additional evidence that a critical reduction of functioning adrenal cortex might lead to amelioration of the hypertensive disease process in intractable cases. Adson had performed partial adrenalectomies with his earliest splanchnicectomies, and others have tried unilateral adrenalectomy without improvement. That life can be maintained after a complete removal of adrenal tissue was demonstrated by Huggins in patients with metastatic cancer. The recent synthesis of cortisone, its relatively low cost, and its efficacy when administered orally, have made it possible to maintain patients with adrenal cortical hypofunction in good general health.

Green and his co-workers¹ performed a bilateral adrenalectomy on a 28-year-old woman with malignant hypertension and severe diabetes. As late as 15 months postoperatively there was a regression of the cerebral, retinal, myocardial, and vascular disturbances and marked improvement in diabetes. Encouraged by this observation two combined medical and surgical teams began a study of adrenalectomy, one at the University of Pennsylvania, including Drs. C. C. Wolferth, W. A. Jeffers, H. A. Zintel, F. D. W. Lukens, H. H. Hafaenschel, and others, the second at Harvard Medical School (Peter Bent Brigham Hospital), including Drs. D. W. Thorn, J. H. Harrison, J. P. Merrill, and others. Each team received grants and supplies of cortisone. Each entered into a detailed program of study, treatment, and follow-up observation.

Thorn² and his co-workers evaluated bilateral complete adrenalectomy in 15 patients. Eleven had advanced malignant hypertension; three had advanced glomerulonephritis causing marked renal insufficiency with vascular changes in the fundi; and one had chronic glomerular nephritis with minimal eyeground changes. Six of the patients died within 12 days of operation, one of cardiac arrest, one of coronary occlusion, one after brief symptoms of dizziness, and three with uremia. Four patients died between 3 and 12 months postoperatively, one with symptoms of weakness and dehydration, one of an acute vascular accident and coronary disease, one of congestive failure, and one with uremia. Five of the 15 patients were living one year to 18 months after operation. Two were considered greatly improved. One with minimal changes in the fundi before adrenalectomy lost edema and had reduction of blood pressure. The other with papilledema, hemorrhages, and exudates in the fundi no longer had

1. Green, D. M.; Nelson, J. N.; Dodds, G. A., and Smalley, R. E.: Bilateral Adrenalectomy in Malignant Hypertension and Diabetes, *J. A. M. A.* 144: 439-443 (Oct. 7) 1950.

2. Thorn, G. W., and others: Clinical Studies on Bilateral Complete Adrenalectomy in Patients with Severe Hypertensive Vascular Disease, *Ann. Int. Med.* 37: 972-1005 (Nov.) 1952.

these abnormalities at 18 months but had diminishing renal function and increasing blood pressure. Three of the five survivors were considered less improved. Further reduction of renal function was evident in two, and there was no reduction of blood pressure in the third patient. Thorn and his co-workers observed that increased capacity to excrete sodium and chloride was the most striking physiological change observed. Marked clinical improvement was described in those patients who preoperatively showed evidence of excessive sodium and chloride retention. They thought it justifiable to explore further the usefulness of adrenalectomy in patients with rapidly advancing malignant hypertension, with reasonably adequate renal function, who failed to respond to medical therapy. Interesting as these studies are, death of 10 of 15 patients offsets hope that total adrenalectomy alone would be a helpful means for salvaging patients who cannot be aided by rigorous medical regimens or by sympathectomy.

Lukens,³ Wolferth,⁴ Jeffers,⁵ and their co-workers have presented reports as their group of patients has increased from 6 to 99. Lukens' group first reported that removal of 90% of all adrenal tissue in six patients produced striking improvement in severe advanced hypertension in one and some favorable changes in four. There was one death seven days after operation. Wolferth and his co-workers⁴ summarized observations when the series reached 23 cases. Removal of adrenal tissue ranged from 90 to 100%. Adrenalectomy had been combined with splanchnicectomy in 15 patients. Wolferth stated that subtotal adrenalectomy alone had reduced blood pressure in some cases with marked symptomatic improvement but that it had been necessary to remove more than 90% of adrenal tissue and create a grade of adrenal cortical insufficiency requiring at least minimal replacement therapy. Also combination of subtotal adrenalectomy and sympathectomy was thought to give more promising results than adrenalectomy alone.

The last report of this team⁵ is based on 99 patients, including those of the earlier reports. Duration of follow-up was 1 to 12 months in 54 patients, 13 to 24 months in 28, and 25 to 37 months in 17. Operative procedures are listed as total adrenalectomy alone for 2 patients, subtotal adrenalectomy alone for 11, total adrenalectomy with Adson or Smithwick splanchnicectomy in 24, and subtotal adrenalectomy with various forms of splanchnicectomy in 62 (in 49 of these 62 subtotal adrenalectomy with an Adson subdiaphragmatic splanchnicectomy was performed). Poor renal function, a stroke, or coronary occlusion less than six months previously, age over 55 years, and inability to cooperate in taking adrenal cortical replacement therapy were considered contraindications. Patients were classified before operation according to the system devised by Smithwick. Of 29 patients in group 2, two were dead and 12 had a blood pressure of less than 150/100 mm. Hg, lying and standing. Of 18 in group 3, 2 were dead and 5 had similar reduction of blood pressure. Of 52 patients in group 4, 20 were dead and 6 had this reduction of blood pressure. Only one of the 99 patients was considered a therapeutic failure in that blood

pressure, signs, and symptoms were unchanged after operation. Twenty-three had blood pressures above 150/100 mm. Hg when lying but less than 150/100 standing and 28 in whom the blood pressure was essentially unchanged had improvements of signs and symptoms. The authors state that they have chosen to combine the possible benefits of splanchnicectomy with subtotal or total adrenalectomy but that further observation will be necessary to establish whether or under what circumstances their operation will prove superior in the long run to (1) thoracolumbar sympathectomy, (2) thoracolumbar sympathectomy plus subtotal or total adrenalectomy, or (3) total adrenalectomy alone. They also observed that patients with paroxysmal dyspnea or congestive heart failure prior to operation showed the most striking improvement.

A few other medical and surgical teams are using adrenalectomy, and their evaluation will be important. At present it seems that the most striking change after adrenalectomy is increased capacity to excrete sodium and chloride. Greatest clinical improvement occurred in patients with clinical edema, paroxysmal dyspnea, or congestive heart failure. Results of adrenalectomy in these patients will need to be evaluated against improving medical regimens, diet, and drugs. Adrenalectomy has not prevented progressive renal failure.

There is evidence that the contraindications adopted for sympathectomy also may apply to adrenalectomy. These are azotemia, marked encephalopathy, advanced cardiac damage, and age much exceeding 50. Results of adrenalectomy or of adrenalectomy and splanchnicectomy in patients who do not have these contraindications will need to be evaluated against results of newer medical treatments, sympathectomy alone, or sympathectomy supplemented by use of newer drugs or diets. Survival after adrenalectomy among the patients for whom it was employed, one-third and three-fourths respectively for the two groups, seems low considering the relatively short period of follow-up observation. Obviously sympathectomy was contraindicated in some but not all of the patients who died. The survival rate for thoracolumbar splanchnicectomy (Smithwick⁶), is 70% at 4 to 12 years and that for total sympathectomy (Grimson⁷) is 84% at 5 to 10 years. Only long-term studies of patients who could have had sympathectomy alone and instead had adrenalectomy with splanchnicectomy will determine which procedure is preferable. The constant need for observation and variation of replacement therapy with

3. Lukens, F. D. W., and others: Observations on Subtotal Adrenalectomy in Hypertension, *Tr. Am. Clin. & Climatol. A.* 62: 229-238, 1950.

4. Wolferth, C. C., and others: Observations on the Results of Subtotal Adrenalectomy in the Treatment of Severe, Otherwise Intractable Hypertension and Their Bearing on the Mechanism by Which Hypertension is Maintained, *Ann. Int. Med.* 35: 8-18 (July) 1951.

5. Jeffers, W. A., and others: Evaluation of Adrenal Resection and Sympathectomy in Ninety-Nine Persons with Hypertension, *J. A. M. A.* 153: 1502-1505 (Dec. 26) 1953.

6. Smithwick, R. H.: Hypertensive Cardiovascular Disease: Effect of Thoracolumbar Splanchnicectomy on Mortality and Survival Rates, *J. A. M. A.* 147: 1611-1615 (Dec. 22) 1951.

7. Grimson, K. S.; Orgain, E. S.; Anderson, B., and D'Angelo, G. J.: Total Thoracic and Partial to Total Lumbar Sympathectomy, Splanchnicectomy and Celiac Ganglionectomy for Hypertension, *Ann. Surg.* 138: 532-547 (Oct.) 1953.

risk of death from adrenal insufficiency may adversely affect survival after adrenalectomy and splachnicectomy, or benefits of the procedure might compensate for this hazard and yield improved survival. Similarly, long-term results of improved medical regimens developed during the last few years must be compared with those of surgical procedures before the limitations of each are known.

Adrenalectomy is possibly indicated for patients retaining salt and water. The high incidence of disappointing clinical results after total or subtotal adrenalectomy alone in patients who do not retain salt and water suggests that any role of the adrenal glands in this more usual form of severe hypertensive vascular disease is subordinate to other causes. The indications for adrenalectomy are not yet established. The advantage of adding adrenalectomy to splachnicectomy, sufficient advantage to offset the risk associated with constant need for carefully regulated replacement therapy, also is not yet established.

BLOOD DYSCRASIAS

Data on the etiology and incidence of the hypoplastic anemias are inaccurate and incomplete, since few states or municipalities require reports of these diseases. Information available is generally based either on personal experience in practice or on mortality statistics, and yet it is known that certain physical and chemical agents play a direct causative role in this group of diseases. In addition, a large number of hypoplastic anemias are classified as idiopathic, which suggests that unsuspected agents may be responsible.

The known causative agents may be divided into two groups. The first consists of agents that if administered in a large enough dose cause varying degrees of bone marrow depression and damage in all human beings or exposed experimental animals. Examples of this group are benzol, the antifolic compounds, x-ray irradiation, and the nitrogen mustards. The second group consists of agents that have bone marrow depressant effects in a small, often insignificant percentage of exposed persons but do not have similar effects in experimental animals. Most of the drug-caused anemias belong to this second category. Perhaps the syndromes observed are peculiar to the human species and may be in the nature of allergic or immunologic reactions. It does seem significant that these blood dyscrasias appear predominantly in patients with an allergic history and generally, but not necessarily, after several exposures to the precipitating agent. Possibly the lack of response in experimental animals may be due to the impracticability of testing sufficiently large numbers over a long enough period of time, or it may be due to an inherent insusceptibility of test animals. Such speculation at present probably is immaterial; the fact remains, no practical animal homologue exists that will enable pharmacologists to detect the bone marrow depressant potentialities of new compounds. Although

attempts have been made to predict antihematopoietic properties of new compounds on the basis of chemical structure, these efforts have not been too successful.

The danger exists that among the many newly introduced and often widely used therapeutic and household agents there may be some that have profound depressant effects on the hematopoietic system. Tragic experiences recited to the Council on Pharmacy and Chemistry and its Committee on Research led to the realization that continuation of the present sometimes improperly organized and even haphazard method of reporting would not prevent occurrence of similar episodes in the future. Reporting of drug-caused dyscrasias must be improved, and the information on possible causative agents speedily brought to the attention of the profession to avert needless exposures.

The Committee on Research of the Council on Pharmacy and Chemistry has organized a Subcommittee on Blood Dyscrasias for the twofold purpose of developing methods for the earliest possible reporting of drug-induced blood dyscrasias and of seeking out new methods of experimental approach that might enable more accurate prediction of potential danger from new therapeutic agents. The subcommittee has met and has adopted a specific course of action. It believes the best method for securing accurate information on toxic reactions of the hematopoietic system is to enlist the cooperation of selected hematological centers in various parts of the country. Sixty such centers have been invited to report cases of hypoplastic anemia to the offices of the Committee on Research on a standard report form specifically designed for the purpose. *These reports will be filed monthly and will be scanned and analyzed by the staff of the Committee on Research.* The resultant data will be published from time to time in *THE JOURNAL*; however, if returns indicate that a recently introduced agent is suspected as the responsible cause in several cases, attention will be called immediately to it in *THE JOURNAL*.

To fulfill the second objective, that is, to find new research approaches to the problem of blood dyscrasias caused by drugs, the subcommittee will arrange a symposium attended by scientists trained in many disciplines, for example, hematologists, immunologists, pharmacologists, allergists, and biochemists. It is hoped that after a complete discussion of the experimental problems by hematologists the wide experience of the conferees may suggest some clue that will lead to more accurate appraisal of potential hazards in new agents.

The projected program provides for organized reporting, but this does not mean that the subcommittee is not interested in reports of individual cases seen by physicians in practice; in fact, all physicians are invited to report their cases of hypoplastic anemias directly to the Secretary of the Committee on Research at A. M. A. headquarters. It is entirely possible that this latter course of action may be the most important on occasion when some hitherto unexpected toxic property is found to be inherent in one of the newer remedies.

ORGANIZATION SECTION

The following paper by Dr. Gunnar Gundersen of La Crosse, Wis., a member of the Board of Trustees of the American Medical Association, was read before the midyear conference of the American Hospital Association, Feb. 6, 1954.

BENEFITS OF HOSPITAL ACCREDITATION TO THE MEDICAL PROFESSION

The subject assigned to me for discussion is really very simple. In order to over-simplify it, it might well be said that there are only benefits to be derived, and no disadvantages. The profession of medicine may at times be vocal in its criticism of the accreditation program because it imposes on the medical man certain musts in the discharge of his daily routine. But the thoughtful physician, if he is faithful to his pledge, will, in his own conscience, have no criticism if he stops for a moment to reflect that the final or acid test of a project or program is "the ultimate good for the patient who is entrusted to his care." After all is said and done, the care and welfare of the patient is the only valid measuring stick by which a true evaluation of a project can be made.

Dr. Fred Rankin, president of the American College of Surgeons, in his invocation speech in Chicago last fall, commented on the accreditation program as follows: "The standardized, accredited hospital is a pillar in the edifice of modern surgery, and a most important one. It has two functions. The first is its teaching function. The second is the protection of the patient. This means the enforcement of standards determined by the medical profession and based only upon professional ability and moral integrity. In plain words, this means that staff privileges should be limited exclusively to qualified surgeons. It means that only qualified surgeons, or surgeons who work under supervision in the process of qualification, should be permitted operating room privileges.

"I have no illusions about these requirements. This is a program which is neither simple to set up nor easy to administer in hospitals not associated with teaching institutions and not provided with independent financial support. Nevertheless, every hospital has a moral responsibility in this matter. It must insist that professional attainment and moral character shall determine the composition of the hospital staff.

"Progress in the hospital standardization program has been spectacular in some respects and slow in others. A great step forward was taken when the Joint Commission on Accreditation of Hospitals was recently set up, under the auspices of the American College of Surgeons, the American Medical Association, the American Hospital Association and the Canadian Medical Association. This program cannot fail. It will inevitably have a most salutary effect upon the whole hospital picture. It should improve hospital economics. It should elevate professional performance. Finally, it should modify and improve our public relations, which at the moment are sadly in need of reformation and revitalization."

Let us stop for a moment and take a look at the situation as it existed before the American College of Surgeons undertook its accreditation program, less than forty years ago. You are all familiar with the sad tale of the first report on accreditation. The story is now so familiar to all of you that it hardly needs repetition, but for comparison I invite you to share it with me. Briefly, the state of affairs in hospitals in this country, with very few notable exceptions, was so deplorable that the regents of the college were fearful of the implications and repercussions resulting from public knowledge of the true facts, and they decided to and did burn the first report of the Commission on Hospital Standardization in the furnace of the old Waldorf-Astoria Hotel in New York City. Now, a little over a generation later, we take justifiable pride in the conditions in hospitals of this country and Canada and the type of care a patient is capable of receiving. The one outstanding reason for this change, and it can be said without fear of contradiction, is due to the accreditation program. A conscientious physician is interested in one thing, primarily, and that is only the opportunity to practice good

medicine. The hospital, which is his workshop, provides him with the tools and facilities so that he can do a job well. Therefore, the doctor, from his own selfish point of view, is primarily concerned with hospital accreditation, as it assures him of an environment in which he can best carry out the type of work to which he has devoted a lifetime of study and application.

Up to the present, you may accuse me of dealing in platitudes and generalities, but let us be more specific and go briefly into a few of the desirable activities of the accreditation program. The ones I shall mention are all-important but do not by any means "cover the water front," and are not being discussed necessarily in the order of their importance.

1. *Self-Discipline.* The necessity for keeping accurate and detailed histories imposes self-discipline on the physician. The possibility of overlooking details, which may later prove to be of major importance, is obviously reduced to a minimum if detailed records are insisted upon. The final result is better medicine.

2. *Staff Meetings and Conferences.* The regular meetings of the staff, either at the regular monthly meeting or in the many staff committees, results in self-policing of the staff member to the end that better care of the patient results and, as stated previously, this again is the primary purpose of accreditation. It means better medicine.

3. *C. P. C.'s.* No one would seriously question the great educational value of the clinicopathological conference. In fact, there is probably nothing in medicine which has greater elements of good from an educational point of view than a well-conducted, well-prepared, and well-organized clinicopathological conference. The result is better medicine.

4. *Tissue Committee.* A more recent addition to the accreditation program will most assuredly result in reduction or abolishment of some of the evils in the practice of medicine of which we have heard so much recently in the press and lay magazines. An alert, conscientious tissue committee has in it the elements which would put a prompt end to unnecessary surgery. The "rape of the female pelvis," unnecessary appendectomies, and removal of normal tissue would be reduced to a minimum. Again, better medicine.

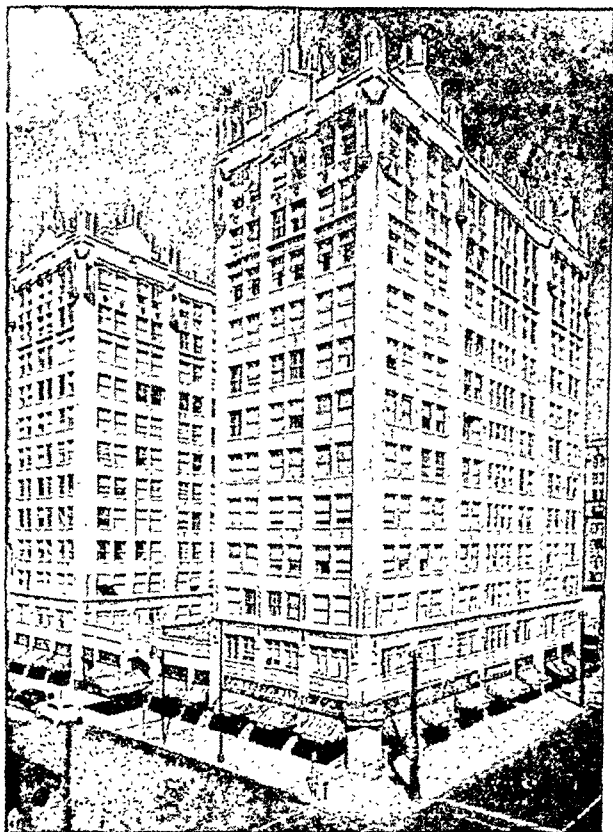
5. *Evils of Medical Practice.* After a generation of medical practice spent in the field of surgery in a fairly typical American city of moderate size, I feel that I have some competence in speaking on the subject, based on my association with men of medicine in my immediate area and surrounding states. I have become increasingly impressed with the fact that the majority of my colleagues are men of unquestioned integrity who are doing the best possible job in their chosen profession within the limits of their ability. I could point to but a few who would deliberately practice bad medicine. The tragedy is that the occasional miscreant may stigmatize the entire profession. No one holds a brief for the occasional few who give the entire profession of medicine a black eye. The conscientious man of medicine is opposed to the evils whether it be ghost-surgery, fee-splitting, fee-gouging, or unnecessary surgery. Organized medicine has the weapons to put an end to all of this if it were but willing and had the determination to do so. The mechanics of dealing with the problem may vary, as do those that exist in a special society such as the American College of Surgeons, where the initiative can be taken from the top echelon, from those that exist in the American Medical Association, which is an entirely democratic organization based on the local county society where the initiative in disciplining a member must be carried out at the local level. However, the most potent force we have, in my judgment, for disciplining the malefactors amongst us exists in the accreditation program. Through the various agencies mentioned previously in the accreditation program, there exists the elements which will eventually upgrade medical practice, from both a scientific point of view and an ethical point of view. The result again, better medicine.

Freedom has made this country strong. Its accomplishments during its less than two centuries is the marvel of the modern world. Freedom has created the modern hospitals of today. They

have, in large measure, grown and developed on a free, voluntary basis. Freedom has seen our voluntary hospital and medical care programs develop at a rate of speed and to a size believed to be beyond achievement, and the end is not yet in sight. Freedom has seen the development of medical science and medical practice in this country, which is second to none. Freedom has made all this possible without compulsion, without government enactment, without police action, and without licensure. Hospital accreditation is freedom in action. It has resulted in the raising of the quality of medical care in the hospitals of the United States and Canada and the relationship of the total hospital-family (the physician, the trustee, and the administration) to it. If you and I can hold fast to freedom, the future has nothing to fear.

COLORADO STATE MEDICAL SOCIETY

Before Colorado attained statehood, the Colorado Territorial Medical Society was founded by 25 physicians Sept. 19, 1871, in Denver, which had welcomed its first railroad the previous year. At that time the population of Colorado (now more than 1,325,000) was about 40,000 and that of Denver, which now is



The Republic Building, Denver, in which the Colorado State Medical Society occupies Suite 835.

over 415,000, was 5,000. Colorado's early history contains the names of Dr. John H. Robinson, a surgeon, probably the first medical practitioner in Colorado, who had volunteered to accompany Lieut. Zebulon Pike on his expedition in 1806-1807 and of whom Pike wrote, "As a gentleman and companion in dangers, difficulties, and hardships, I in particular, and the expedition generally, owe much to his exertions"; and Dr. Edwin James, "who came with the expedition of Major Stephen H. Long in 1820, and distinguished himself not only in his professional capacity but by being the first to ascend Pike's Peak." Before the founding of the Colorado Territorial Medical Society, the Jefferson Medical Society had been organized in a log cabin on June 6, 1860; but, according to the "Historical Notes of the Colorado State Medical Society," gathered by Dr. Walter A. Jayne, "Its rise and fall were alike speedy. The civil strife into

which our country was plunged in 1861 drew to itself most of its founders. . . . These were led, according to their convictions, into the Union Army, or south to the Confederate service, and the embryo Society, left to itself, perished from inanition. Thus was Colorado bereft of its first-born, and no other Society was established until 1868, which, owing to internal dissensions, was as short lived as the first, and yet another was formed, but cohesiveness and durability were not among their attributes, nor have we any records of these first fruits of medical union. But in 1871 a lasting association was finally established. . . ." That society, the Denver Medical Association, now known as the Medical Society of the City and County of Denver, on June 16, 1871, resolved to call the convention that resulted in the formation of the Colorado Medical Society, more commonly referred to as the Territorial Medical Society.

Soon after Colorado was admitted to the Union in 1876 as the "Centennial State," the society reincorporated under its present title. When first organized it affiliated with the American Medical Association, and in 1902, conforming with the reorganization of the Association, the society reorganized with component county and district societies and a house of delegates. In 1931 it again rewrote the state charter, modernizing its internal structure by assigning its executive functions to a board of trustees and its judicial functions to a board of councilors. Its board of supervisors, a part of its state-wide system of investigation and internal self-discipline, is the prototype after which many other societies have fashioned their grievance committees. Its "Code of Ethics" between the medical and hospital professions and the press, radio, and television industries, has also served as a model, as has its policy, adopted by its component societies, to publicize average community fee schedules. Excellent public relations are maintained through its own fully dramatized local-interest weekly radio program, "Dr. Tim, Detective," which won the 1950 award from Ohio State University's Institute for Education by Radio, and also by its weekly health feature, "Old Doc Experience," a health column, developed by the society in cooperation with the Colorado Press Association, which has been used for many years by many Colorado newspapers. For several years a special committee has also presented an annual series of articles for ranch and farm magazines.

The society's long campaign to reorganize the Colorado State Health Department culminated in 1947 with the passage of eight companion acts by the state legislature, generally known as the "Sabin Bills," public leadership of the campaign having been centered around the late Dr. Florence R. Sabin, who had returned to Colorado after retiring from her work with the Rockefeller Foundation. Earlier, in 1937, another long campaign of the society had resulted in passage of a basic science act in Colorado. The society is currently engaged in a campaign against stream pollution and a similar drive for reduction of automotive injuries and fatalities. Its general activities are carried out through its three boards of trustees, councilors, and supervisors; 31 standing committees, including 11 on public health; 8 special committees; and several liaison representatives to other professional and civic organizations.

The society publishes the *Rocky Mountain Medical Journal*. During the early years of its organization the society published the annual "Transactions," which it replaced in November, 1903, with a monthly medical journal *Colorado Medicine*, changed in January, 1938, to *Rocky Mountain Medical Journal*. The periodical is owned by the Colorado society through its board of trustees but is edited under the direction of a five-state editorial board under agreements between the medical associations of Colorado, Wyoming, Utah, New Mexico, and Montana, for a nonprofit plan of publication with proportionate usage of journal space. These states are further linked by the Rocky Mountain Medical Conference, a biennial scientific meeting managed by a five-state committee, with the meeting place rotating among the participating societies. In addition to this biennial co-sponsored conference, the Colorado State Medical Society conducts three major annual medical meetings: a four-day annual session, held usually in September in Denver, Colorado Springs, or Estes Park; a three-day interim meeting, known as the Midwinter Postgraduate Clinics, held each February in Denver; and the two-day Rocky Mountain Cancer Conference, sponsored jointly with the Colorado division of the American Cancer Society and held each July in Denver. The society also co-sponsors with the

University of Colorado School of Medicine, Denver, a continuing group of postgraduate courses offered to component societies in smaller population centers throughout the state. The state organization is composed of 26 county and district societies, the largest being Colorado's only metropolitan society, the Denver Medical Society, which itself amounts to 45% of the total state membership. This society is currently constructing a \$35,000 medical library building, to be ready for occupancy late this summer, which will house the Denver society's office and its information and referral center. The headquarters of the state medical society in the Republic Building, as seen in the illustration, consists of a reception room, a conference or committee room, six office rooms, a mail room, and a storage room. Since June 1, 1929, the executive office has been under the direction of Harvey T. Sethman, executive secretary. The staff includes eight full-time and two part-time members. The society's current membership of 1,791 represents 90% of the licensed doctors of medicine living in Colorado. Its officers include: Dr. Claude D. Bonham, Denver, president; Dr. Samuel P. Newman, Denver, president-elect; Dr. Lawrence D. Buchanan, Wray, vice-president; Dr. Irvin E. Hendryson, Denver, constitutional secretary and chairman of the board of trustees; and Dr. Frank I. Nicks Sr., Colorado Springs, treasurer.

UNIVERSITY HONORS A. M. A. PRESIDENT

The University of Toledo in Ohio on Feb. 12 conferred the honorary degree of Doctor of Civil Law on Dr. Edward J. McCormick, President of the American Medical Association. The citation stated that the President of the A. M. A. has "earned the respect and gratitude of colleagues in [his] profession and that of fellow citizens in northwestern Ohio." It further extolled Dr. McCormick's "ability and leadership" in the field of medicine. Toledo is Dr. McCormick's home town.

FEDERAL MEDICAL LEGISLATION

Malnutrition

Senator Douglas (D., Ill.) proposes in S. 2901 to direct the Secretary of Health, Education, and Welfare, the Administrator of Veterans' Affairs, and the War Claims Commission to make a study of mental and physical consequences of malnutrition in prisoners of war and civilian internees in World War II and the Korean War. Results of the study would be used to extend practice "for the purpose of determining: (1) the procedures and standards to be applied in the diagnosis of the mental and physical condition of former prisoners of war; (2) the life expectancy of former prisoners of war; (3) whether there is evidence to sustain a conclusive presumption of service connection in favor of former prisoners of war for purposes of hospitalization in Veterans' Administration facilities; and (4) standards to be applied for the evaluation of claims of American civilian and military personnel based upon the physical and mental consequences of the conditions of their imprisonment in the event such claims are later made compensable." This bill was referred to the Committee on Labor and Public Welfare. Congressman Fulton (R., Pa.) has introduced an identical bill, H. R. 7711, which was referred to the Interstate and Foreign Commerce Committee.

Social Security Increases

Senator Long (D., La.) has introduced a bill, S. 2929, amending the social security act "to increase Federal financial participation in State programs for old-age assistance, aid for dependent children, aid to the blind, and aid to the permanently disabled, in order that the States may make appropriate adjustments in their payments to beneficiaries under such programs to provide for the increased cost of living." He proposes a \$10 monthly increase from the present maximum of \$55 for the aged, blind, and permanently disabled. The federal contribution is increased from the present four-fifths of the first \$25 and one-half of balance to four-fifths of the first \$25 and five-eighths of the balance up to the new maximum of \$65. The federal aid to dependent children would be increased from the present four-fifths of the first \$15 and one-half of the balance to four-fifths

of first \$18 and five-eighths of balance up to \$36. The last federal increases were made in 1952, and will end Sept. 30. The proposed bill has no automatic termination clause. It was referred to the Finance Committee.

Extending Water Pollution Control Act

Congressman Cannon (D., Pa.) in H. R. 7644 proposes to extend for three additional years (until June 30, 1959), the water pollution control act. This would provide federal assistance to states through study, advice, and grants. The Cannon proposal would permit loans to states and municipalities for construction of sewage treatment works to a total of 40 million dollars annually. Present authorization is \$22,500,000 closed premises, and doubles a maximum amount of loan per project from \$250,000 to \$500,000 or from 33⅓ to 66⅔% of the cost, whichever is smaller. The annual interest rate is raised from 2 to 2½%. The bill was referred to the Public Works Committee.

Limiting VA Outpatient Dental Care

Congressman Frelinghuysen (R., N. J.) in H. R. 7653 extends a restriction now in the law as a part of the second independent offices appropriation act of 1954, which expires June 30. This provision restricts the outpatient dental treatment to veterans with service-connected complaints and is in line with President Eisenhower's budget recommendations. The bill was referred to the Veterans' Affairs Committee.

Medical and Dental Expense Deductions

Congressman Whitten (D., Miss.) in H. R. 7681 would remove limitations for deductions for medical expenses from gross income in calculating income tax. This bill is essentially similar to H. R. 3911. The present law allows deductions only when they exceed the 5% income. The bill was referred to the Ways and Means Committee.

Mortgage Insurance for Medical Facilities

Congressman Wolverton (R., N. J.) proposes in H. R. 7700 to provide federal mortgage insurance for private loans for the construction of medical facilities supplying voluntary, prepayment, group practice medical care. Medical facilities include hospitals, diagnostic or treatment centers, personal health service centers, rehabilitation facilities, and offices for physicians and dentists. A medical facilities mortgage insurance fund would be created under the Surgeon General of the U. S. Public Health Service with \$2,500,000 allocated immediately and additional annual appropriations as necessary. The Surgeon General could borrow up to 5 million dollars from the U. S. Treasury to carry out the program. The aggregate amount of all outstanding mortgages could not exceed 1 billion dollars except, with the approval of the President, it could be increased another 250 million dollars. To obtain insurance, a mortgage could not exceed 5 million dollars, have a maturity over 40 years, bear interest in excess of 6% (6½% in certain mortgage markets), and reserve less than 60% of the insured medical facility for serving members of group practice, prepayment health plans. This bill, which supersedes H. R. 6951 previously reported, was referred to the Interstate and Foreign Commerce Committee.

Social Security Extension

Congressman Williams (D., N. J.) proposes in H. R. 7713 to extend the old age and survivors insurance system to provide permanent and total rehabilitation benefits. This social security coverage is extended to self-employed persons but does not include physicians or dentists. The bill, which is identical with S. 2260 and 22 other House bills previously reported, was referred to the Ways and Means Committee.

Health Insurance Premiums Withholding for Federal Employees

Congressman Roberts (D., Ala.) has introduced H. R. 7742, which would authorize on request the withholding from salaries of federal employees premiums paid for voluntary, prepayment plans and insurance for hospital and medical care. This bill, which is identical with S. 2191 and S. 2260, was referred to the Committee on Post Office and Civil Service.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

Oral Narcotic Prescriptions

Congressman Martin (R., Iowa) in H. R. 7817 would permit the sale of narcotic drugs that possess little or no addiction in comparison with morphine, codeine, or cocaine on an oral prescription of a registered physician, dentist, veterinary surgeon, or other authorized practitioner. In issuing an oral prescription, the same information that is now required on written prescriptions would be necessary and would be put in writing promptly and filed with the druggist or dealer. The Secretary of the Treasury would determine what narcotic drugs could be prescribed orally. He would consider the views of the Public Health Service, the Food and Drug Administration, and the secretaries of national associations representing physicians, pharmacists, and narcotic drug manufacturers. This bill is being supported by the National Association of Retail Druggists. It was referred to the Ways and Means Committee.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 241, relating to the practice of medicine and surgery, proposes, among other things, that the examination of applicants shall include an examination in the subjects of obstetrics, pharmacology, materia medica, general surgery, clinical medicine, public health and hygiene, bacteriology, and pediatrics, in addition to subjects already mentioned in the existing law. H. 242, declares it to be the public policy of the legislature that steps be taken to acquire and construct additional facilities for the care, treatment, and isolation of persons suffering from tuberculosis and proposes a method of accomplishing this policy.

Kentucky

Bills Introduced.—H. 356, proposes the creation of a Kentucky state board of masseurs and masseuses and defines massage as the treatment of superficial soft parts of the body for remedial or hygienic purposes, consisting of rubbing, stroking, kneading, or tapping with the hand or an instrument. H. 383, proposes certain amendments to the chiropractic practice act including a definition of chiropractic that would authorize licentiates to treat with analgesics, antipyretics, and codeine, orally, and antibiotics or sulfanilamide agents through local application. H. 384, proposes regulations for the control of rabies. H. 387, proposes to authorize county hospitals to purchase liability and indemnity insurance for the protection of their patients against the negligence of the employees of such hospitals.

Maryland

Bill Introduced.—S. 54, proposes the enactment of a temporary disability insurance law.

Bill Enacted.—S.R. 5, was adopted Feb. 11, 1954. It resolves that the legislative council be requested to investigate the feasibility and manner of making available to subscribers to the Blue Cross Plan the benefits of the Blue Shield program of benefits.

Michigan

Bills Introduced.—H.R. 16, proposes the appointment of a special committee to investigate the shortage of doctors of medicine in the state of Michigan. S. 1129, proposes to authorize the use in court, in cases in which paternity is a relevant fact, the results of blood grouping tests made of the other child and alleged father and authorizes the court to order such tests to be made. The proposal further provides that if the court finds that the conclusions of all the experts, as disclosed by the evidence based upon the tests, are that the alleged father is not the father of the child, the question of paternity shall be resolved accordingly.

Mississippi

Bill Introduced.—H. 536, proposes that all persons over the age of 15 years residing in the state and designated by the state board of health shall be examined and x-rayed and otherwise tested for tuberculosis and shall be given an approved serologic test for syphilis every two years.

New Jersey

Bills Introduced.—A.J.R. 2, proposes the creation of a commission to investigate nonprofit hospital and medical-surgical plans operating in the state as to premiums being assessed and the reasonableness of the rates being charged to policyholders. A. 171, proposes the enactment of a temporary disability benefits law. S. 67, proposes the establishment of a state medical and dental college to be affiliated with the State University of New Jersey. S. 79, proposes that every physician within 12 hours after his diagnosis that a person is ill or infected with a communicable disease or other disease, required by any law of the state or the state sanitary code to be recorded, shall report such diagnosis and related information as may be required by the state department of health. In cases of venereal disease, the report would be made to the state department of health and in other cases to the health officer designated by the local board of health.

New York

Bills Introduced.—A. 1118, proposes to require applicants for an operator's or chauffeur's license to pass such eye tests as will satisfy the commissioner that he is visually competent to operate a motor vehicle or, in lieu thereof, to produce a certificate from an eye physician, ophthalmologist, oculist, or optometrist attesting that he has been examined and found visually competent. A. 2174, to amend the public health law, proposes the establishment in the state department of health of an adult hygiene and geriatrics program designed to improve and protect the health and vitality of middle-aged and elderly citizens of the state. A. 2207 and S. 2213 propose to require applicants for a chauffeur's license to pass certain eye tests or else furnish a certificate from a physician or optometrist. A. 2226, proposes an appropriation to the state department of health for the purpose of conducting a pilot experiment in the physical rehabilitation of older persons and a community demonstration project in physical rehabilitation in a small and moderate-sized community. A. 2324 and S. 1937, proposes the establishment as a part of the department of health of a heart institute to conduct, assist, and foster research and investigation relating to the cause, prevention and methods of diagnoses and treatment of heart diseases. A. 2417 and S. 2122, propose that the board of hospitals of the city of New York shall have the power and it shall be its duty, upon the request of a patient at the time of his discharge from any hospital, to require such hospital to furnish the patient with a complete history of admission and operation notes. A. 2595, to amend the workmen's compensation law, proposes to require copies of every report of examination, finding, and opinion of a physician or medical consultant to be transmitted to the claimant or his authorized representative. A. 2596, to amend the workmen's compensation law, proposes that all physicians designated to conduct special examinations shall be prohibited from examining, treating, or prescribing for any claimant for compensation in a case other than for the purpose of making such special examinations and their reports thereon. S. 2031, to amend the insurance law, proposes that membership corporations organized for the purpose of furnishing medical expense indemnity shall provide such medical care through any duly licensed physician of the subscriber's choice whether or not designated or approved by the corporation. S. 2044, to amend the penal law relating to violations of the public health law with respect to narcotic drugs, proposes that no overt act is necessary in establishing a conspiracy to violate the public health law with respect to narcotic drugs. The agreement to violate the law would be sufficient in and of itself. S. 2181, to amend the education law, proposes the creation of 100 state scholarships to legal residents of the state who are registered professional nurses for the purpose of advanced education in teaching or administration of nursing. S. 2182, proposes the establishment of 1,000 state scholarships for attendance at schools of nursing for the training of professional nurses. S. 2252, proposes the creation of a temporary state commission to study, examine, and propose definite educational standards and provide for the licensing of all persons with the exception of all doctors who prescribe or sell hearing aids. S. 2263, to amend the vehicle and traffic law, proposes that a physician shall not be liable for damages in any civil suit for withdrawing blood for the purpose of determining the alcoholic content thereof, except for gross negligence in the performance of such withdrawal, when the withdrawal has been at the request of a police officer. S. 2709, proposes hospitals, infirmaries, clinics, and so forth, shall be liable for damages for personal injuries sustained by any person or for death resulting from the negligence or malpractice of a physician, surgeon, nurse, or other person employed by such institution and that nothing in the proposal would be construed to grant immunity from liability for such damages to any physician, surgeon, nurse, or other person for or on account of any such act of negligence or malpractice.

Rhode Island

Bill Introduced.—H. 543, proposes the creation of a special commission to study and report upon the feasibility of setting up a medical school at the University of Rhode Island. H. 634, proposes certain general amendments to the workmen's compensation act, among which is the provision that any injured employee shall at all times be entitled to treatment, care or rehabilitation by a physician, dentist, or hospital of his own choice.

Virginia

Bills Introduced.—H. 681, proposes to direct the Medical College of Virginia to establish and maintain a mobile psychiatric clinic to provide the services and perform the functions set forth in the act for children who have been committed to the department of welfare and are being held in any institution maintained by such department in Richmond or adjoining counties and at the training schools maintained by the department. S. 330, to amend the medical practice act, proposes that any applicant who is a citizen of the United States and who has studied medicine in a foreign medical school for at least three years and who has studied medicine in the United States for at least one year and who has been admitted after examination, to practice medicine in at least two states, and who has served an internship and residency in a general hospital for at least two years, and who, in addition thereto, has practiced medicine for at least six years in the United States, and who in addition thereto has served as a medical officer for at least two years in the armed forces of the United States, shall be permitted to take an examination for a license to practice medicine and shall be admitted to practice upon successfully passing this examination, provided that the applicant obtains a medical qualifying certificate from the state board of education, furnishes evidence of good moral character, and has resided in this state for at least two years immediately preceding his application.

MEDICAL NEWS

ALABAMA

Tom Spies Honored.—At a luncheon in Birmingham, arranged by the council of the Southern Medical Association, Dr. Tom D. Spies, director, Nutrition Clinic, Jefferson-Hillman Hospital, Birmingham, was cited "on completion of 25 years of unselfish service to humanity in the field of research, during which time he has given unsparingly of himself and his talents to study and devise better methods of recognition and treatment of disease." Mr. Hugh Comer, chairman of the Alabama Spies Committee, accepted the citation for Dr. Spies. Dr. Mario J. LeRoy, secretary-general of the Cuban Society of Public Health and of the Finlay Institute, Havana, Cuba, where Dr. Spies also has a clinic, presented to him an honorary membership in the Cuban Society of Public Health. Congratulatory telegrams were read from Dr. Louis H. Bauer, Hempstead, N. Y., Past President of the American Medical Association, and Dr. Guillermo Garcia Lopez, president of the University of Havana, at which Dr. Spies is an honorary professor.

CALIFORNIA

Conference in Ophthalmology.—Stanford University School of Medicine will present the annual postgraduate conference in ophthalmology, March 22-26. Registration is open to 30 physicians who limit their practice to the treatment of diseases of the eye or of the eye, ear, nose, and throat. Information may be obtained from the Dean, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Case of Typhus.—According to the U. S. Public Health Service, a 28-year-old woman became ill the day she returned from three weeks in Hawaii. The symptoms, generalized aching, prostration, chills, fever, and sweating, were followed in two weeks by a faint red rash on forehead and abdomen that lasted about a day. During the trip the patient had never been alone or off the streets frequented by everyone else, and no pets were seen to and from, or on the islands. The Weil-Felix reaction was positive in a dilution 1:320 on the 11th day of illness and positive 1:1280 on the 18th day, and the complement fixation test was positive in a dilution 1:8 on the 11th and 18th days after onset.

CONNECTICUT

School of Alcohol Studies.—The Summer School of Alcohol Studies of the Laboratory of Applied Physiology, Yale University, will hold its regular annual session July 5-29 and a special session for nurses July 29-31. Among the topics to be discussed are "Society and the Problems of Alcohol," "The Psychological Effects of Alcohol," "Theories Concerning the Nature of Alcoholism," and "Theories Concerning the Treatment of Alcoholism." Starting in the second week of the school the afternoons will be devoted to seminars, which will include a rehabilitation seminar and a medical therapy seminar. Applications must be submitted by April 1 to Summer School of Alcohol Studies, 52 Hillhouse Ave., Yale Station, New Haven. The fee of \$250 covers university registration, tuition, room, and board (18 meals weekly).

DISTRICT OF COLUMBIA

Institute on Cardiac Rehabilitation.—The Washington Heart Association is sponsoring an Institute on Cardiac Rehabilitation for nurses, social workers, and therapists, March 18, 1-5 p. m., at the Medical Society of the District of Columbia, 1718 M St., N. W., Washington. Local physicians who will participate in the program include Josephine J. Buchanan, W. Proctor Harvey,

and Andrew G. Prandoni. Information may be obtained by calling Mrs. Lewis at the Washington Heart Association, STerling 3-1397.

Kellogg Lectures.—The George Washington University School of Medicine in Washington, is presenting the annual Kellogg lectures at the school, 1335 H St., N. W., beginning at 8:30 p. m. On March 3, "Terminal Care for the Gynecologic Cancer Patient" was discussed by Dr. Norman Fritz Miller, University of Michigan Medical School, Ann Arbor. The following lectures will complete the series:

- March 15, Pathogenesis and Management of Coronary Atherosclerosis, Thomas Morton Durant, Philadelphia.
- March 17, Emotional Problems in Heart Disease, Edward Weiss, Philadelphia.
- March 29, Management of Visceral Trauma, Edward Mather Kent, Pittsburgh.
- April 1, Problems in Abdominal Surgery in Infancy and Childhood, Marcus Mitchell Ravitch, New York.

Society News.—The District of Columbia Society for Crippled Children is sponsoring lectures at its headquarters, 1767 Massachusetts Ave., N. W., Washington. The following topics are scheduled for presentation from 3:30 to 4:30 p. m.:

- March 16, Behavior Problems in Children, Thelma Hunt, Washington, D. C.
- March 23, Psychosomatic Aspects of Brain Damage, John R. Cavanagh, Washington, D. C.
- March 30, Education of the Brain-Damaged Child, Mrs. Miriam Tanhauser, supervisor of education, Montgomery County.
- April 6, D. C. Public School System and the Brain-Damaged Child, Carl Hansen, Ph.D., assistant superintendent of schools, Washington, D. C.
- April 27, Future of the Brain-Damaged Child, James F. Garrett, Ph.D., director of program services, Department of Health, Education, and Welfare, U. S. Public Health Service.

ILLINOIS

Lecture on Operational Psychotherapy.—Dr. Jacob E. Fine-singer, professor of psychiatry, University of Maryland School of Medicine, Baltimore, will discuss "Operational Psychotherapy" at Veterans Administration Hospital, Downey, 10 a. m. March 17. Discussion of a case presentation is scheduled for 1 p. m.

Tuberculosis Conference.—The Tuberculosis Institute of Chicago and Cook County will hold its annual tuberculosis conference at the Hotel Sherman, Chicago, March 18-19. The Thursday afternoon session, co-sponsored by the Chicago Tuberculosis Society, will present a picture of the workings of the Municipal Tuberculosis Sanitarium. On Friday morning the theme will be "Tuberculosis—A Community Problem," during which a panel "The People—How Much Do They Know About Tuberculosis?" will be presented. The Friday afternoon nursing session will feature a "This Is Your Life" case history.

Chicago

Summer Camp for Diabetic Children.—The Chicago Diabetes Association, announces its sixth summer camp for diabetic children, July 18-Aug. 8 at Holiday Home, Lake Geneva, Wis. There will be a staff of resident physicians and dietitians, trained in the care of diabetic children. Boys and girls, ages 8-14, are eligible. Fees will be set on a sliding scale to meet individual circumstances. Physicians are requested to notify parents of diabetic children and to supply the names of children who would like to attend camp. Information may be obtained from the Chicago Diabetes Association, 5 S. Wabash Ave., Chicago 3 (ANdover 3-1861). Limited capacity requires prompt application.

Dr. Sanford Succeeds Dr. Poncher.—Dr. Heyworth N. Sanford, acting head, department of pediatrics, University of Illinois College of Medicine since September, 1952, has been appointed head of the department succeeding Dr. Henry G. Poncher who resigned. Dr. Sanford, who has been a member of the faculty of the university since 1941 when he was

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

appointed clinical associate professor of pediatrics, was promoted to full professor in 1944. He received Raymond B. Allen instructorship awards from both the senior and junior classes in medicine last June. Dr. Sanford has resigned positions as chairman of the department of pediatrics at Presbyterian Hospital and as president of the medical staff of that institution but will continue his association with Cook County Hospital, with which he has been affiliated since 1930 and where, during the past seven years, he has been head of the department of children's hematology and attending physician.

MARYLAND

Dr. Cooley Goes to Texas.—Dr. Robert N. Cooley, assistant professor of radiology, Johns Hopkins University School of Medicine, Baltimore, has accepted appointment as professor of radiology and chairman of the department at the University of Texas Medical Branch, Galveston. An extension of department facilities in the new John Sealy Hospital building is being developed under Dr. Cooley's direction.

Society News.—At a meeting March 19, 8:30 p. m., in Osler Hall, 1211 Cathedral St., the Baltimore City Medical Society will present a panel discussion "Uses and Abuses of ACTH and Cortisone" with Dr. A. McGehee Harvey, director, department of medicine, Johns Hopkins University School of Medicine, as moderator. Participants will be Dr. Joseph L. Hollander, director, department of medicine, University of Pennsylvania School of Medicine, Philadelphia, and Drs. Lawrence E. Shulman, assistant in medicine, Alan C. Woods, professor of ophthalmology, Leslie N. Gay, associate professor of medicine, and Raymond C. V. Robinson, instructor in medicine, Johns Hopkins University School of Medicine.

MICHIGAN

County Secretaries-Public Relations Conference.—At the annual County Secretaries-Public Relations Conference, Jan. 31, in Detroit, Dr. L. Dell Henry, Ann Arbor, served as chairman of the conference. Dr. L. Fernald Foster, Bay City, was chairman of discussions incident to the presentation of nine dramatic skits, entitled "What Would You Do?" in which the following practical problems faced by county society secretaries were portrayed: 1. How Long Should a County Medical Society Secretary Serve? 2. Membership Problems. 3. Orientation of New Members. 4. Enforcement of Mediation. 5. Utilization of Hospital and Medical Care Insurance. 6. Importance of Office Secretary to M.D. 7. Itemized Bills. 8. M.D. Participation in Civic Affairs. 9. Solicitation of Ex-Members. Dr. C. Allen Payne, Grand Rapids, was chairman of the Public Relations Conference, at which the following program was presented:

Operation Periphery, Mr. Edgar L. Harden, East Lansing.

Deekside PR, John F. Conlin, Boston.

How Well Do You Know Your Business? Mr. L. Clayton Hill, Ann Arbor.

Here's the Score for '54, C. Allen Payne, Grand Rapids, and Mr. Hugh W. Brennehan, Lansing.

MISSOURI

Society News.—Under the sponsorship of the St. Louis Society for Internal Medicine, Dr. William Dock, professor of medicine, State University of New York College of Medicine at New York City, Brooklyn, will present "Causes and Significance of Apical Localization of Tuberculosis" at a meeting of the St. Louis Medical Society, March 16, 8:30 p. m., in the medical society auditorium, 3839 Lindell Blvd.

Study of Infant Mortality.—A committee to study the infant mortality in the hospitals of St. Louis and St. Louis County has been formed as a joint organization of the St. Louis Academy of General Practice, the St. Louis Gynecology Society, and the St. Louis Pediatric Society. Recently published figures of the St. Louis health commissioner, Dr. J. Earl Smith, show that the death rate among infants in St. Louis has risen each year since 1949 and that the city now has the highest infant death rate of all the large cities. The committee will analyze each infant death in all hospitals of the city and county of St. Louis.

NEW JERSEY

Cardiac Seminar.—The New Jersey Heart Association has scheduled its fifth scientific session for March 17, 2-5:30 p. m. in the auditorium, Mutual Benefit Life Insurance Company, 300 Broadway, Newark. The program will include:

Rotational Effects on the ECG, Simulating Myocardial Infarction, Emanuel Goldberger, New York.

Modern Ballistocardiography, Benjamin M. Baker and Martin L. Singewald, Baltimore.

Clinical Significance of Heart Sounds, J. Scott Butterworth, New York.

Choice of Anesthesia for the Cardiac Patient, Leroy D. Van Dam, Philadelphia.

Ectopic Rhythms Secondary to Electrolyte Imbalance, Samuel Bellet, Philadelphia.

Indications for Cardiac Surgery, Ferdinand F. McAllister, New York.

NEW YORK

Society News.—On March 18, 9 p. m., Dr. Leo H. Crip, associate professor of medicine, University of Pittsburgh School of Medicine, will present "Vascular Allergy" before the section on allergy, Medical Society of the County of Kings and Academy of Medicine of Brooklyn, 1313 Bedford Ave., Brooklyn.

New Director of Saranac Laboratory.—Dr. Gerrit Willem Hendrik Schepers of Johannesburg, South Africa, has been named director of the Saranac Laboratory of the Trudeau-Saranac Institute in Trudeau. Dr. Schepers was formerly affiliated with the Medical School, Johannesburg, the Johannesburg Municipal Benefit Society, for which he was administrative and research medical officer, and the Medical Faculty of Pretoria. He is chairman of the pulmonary disability committee of the Miner's Phthisis Bureau and was awarded the Queen's Coronation medal in recognition of his service in the field of pulmonary disease disability.

New York City

Tumor Clinic.—Dr. John J. Conley, assistant surgeon, Manhattan Eye, Ear and Throat Hospital, and associate surgeon, otolaryngology, St. Vincent's Hospital, will discuss "Cancer of the Cervical Esophagus with Immediate One Stage Repair" at the Tumor Clinic Conference, Harlem Hospital, March 17, 10:45 a. m.

Harvey Lecture.—Albert L. Lehninger, Ph.D., DeLamar professor of physiological chemistry and director of the department of physiological chemistry, Johns Hopkins University School of Medicine, Baltimore, will present "Oxidative Phosphorylation," the seventh Harvey lecture of the 1953-1954 series, at the New York Academy of Medicine, March 18.

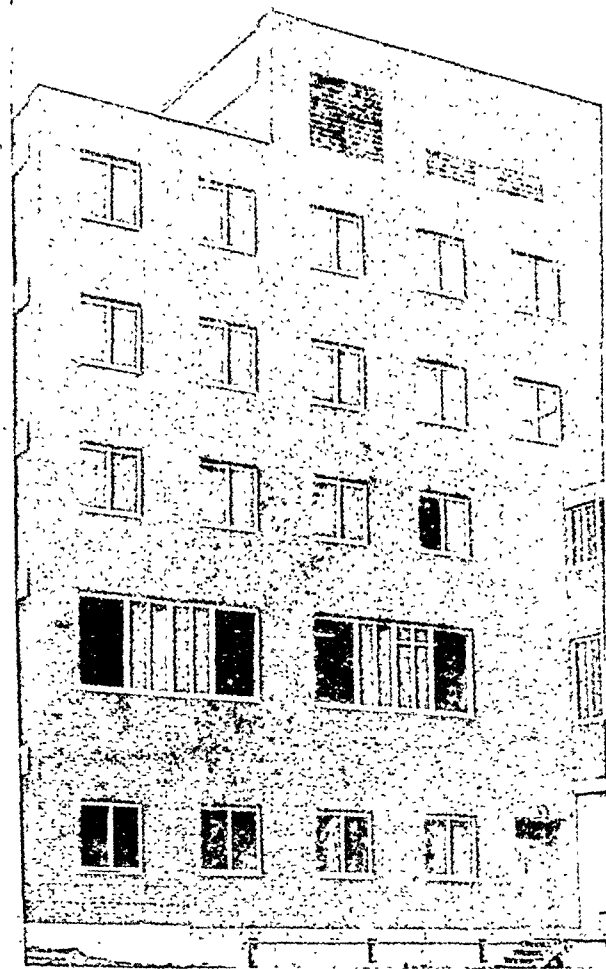
Talk on Medical Jurisprudence.—The Omicron chapter of the Phi Delta Epsilon fraternity at New York Medical College will hold the annual Aaron Brown lectureship, March 17. Judge Julius Isaacs, chairman of the committee on medical jurisprudence of the New York Bar Association, will discuss "A Survey of the Position of the Doctor and Law."

Rehabilitation Workshop.—Columbia University Teachers College and Institute for the Crippled and Disabled will hold a three and one-half week field workshop in rehabilitation teamwork, beginning June 1. A maximum of 35 professionals experienced in their own disciplines will be admitted to the course, which will include field experience, rehabilitation seminars, daily case conferences, individual counseling, and guest lectures. Fee for the course, \$100, includes \$75 for tuition, \$7 Columbia University fee, and \$18 to cover the cost of books, syllabuses, pamphlets, and mimeographed material. Applications must be filed before April 1. Information may be obtained from Maurice A. Fouracre, Teachers College, Columbia University, New York 27.

OHIO

Cancer Research Laboratory.—The new five-story cancer research laboratory wing to the University Hospital at Ohio State University Health Center, Columbus, was recently constructed with funds appropriated by the state legislature, plus a matching research construction grant from the National Cancer Institute of the U. S. Public Health Service and a supple-

mental grant from the Kettering Research Foundation. The first floor houses the Columbus Cancer Clinic, a continuation of the first free diagnostic cancer clinic opened in this country in 1921. Research studies at the clinical level will be followed here, where the cancer registry and special research records and files will be kept. Research laboratories occupy all other floors. The second floor, known as the Herman A. Hoster Research Laboratories, has facilities for a continuation of the enzyme and biochemical studies on Hodgkin's and allied diseases, which were intensively pursued under the direction of the late Dr. Hoster, who was instrumental in obtaining the new



Cancer Research Laboratory.

wing. The third floor has 12 research laboratories. The fourth floor has the air-conditioned small animal quarters and laboratories for medical biophysics, including radioactive isotope investigations. The basement level has a cold room, a deep freeze room, and the cancer research laboratories for the department of obstetrics and gynecology.

OKLAHOMA

Practitioners' Conferences.—Through the Postgraduate Instruction Program made available to the physicians of Oklahoma by the office of postgraduate instruction at the University of Oklahoma School of Medicine, Oklahoma City, the following conferences will be held at the auditorium in the school of medicine at 7:30 p. m.: March 18, atopic dermatitis; April 15, poliomyelitis; and May 20, diagnosis and treatment of congestive failure.

Tape Recordings Available.—The Council of the Oklahoma State Medical Association has approved a new, nonprofit, medical tape recording library. Many important meetings and postgraduate courses in Oklahoma for the past year have been recorded, and it is contemplated that several national meetings

will be tape-recorded by this service. Recordings are distributed by the Srigley-Randels Clinic, Hollis. A nominal rental fee is charged to cover operating costs. Other medical recording libraries in operation are the SOS GP Library, 286 W. McMicken Ave., Cincinnati 14, Ohio, and Audio-Digest 404 E. Broadway, Glendale, Calif. Almost 40 tapes are now available through request to the executive office or to Dr. Robert S. Srigley, Hollis.

PENNSYLVANIA

Meeting on Physical Medicine.—The Pennsylvania Academy of Physical Medicine and Rehabilitation will present the following program March 20 at Valley Forge Army Hospital, Phoenixville:

Clinical Electromyography, Lieut. Col. Edward B. Shires, Phoenixville; discussed by Francis J. Bonner, Ardmore.

Pain Threshold, Capt. Thomas Guthrie, Collegeville; discussed by Herman L. Rudolph, Reading.

Physical Medicine in the Treatment of Preoperative and Postoperative Chest Surgery Patients, Lieut. Robert M. Krout, New Cumberland; discussed by William H. Schmidt, Philadelphia.

Physical Medicine in the Treatment of Hand Surgery Patients, Lieut. Sidney Barr, Philadelphia; discussed by Harold Lefkoe, Philadelphia.

(Note: To reach the hospital, turn onto Bridge St. in Phoenixville at a three-way intersection from Pennsylvania routes 23 and 83 and drive about a half-mile southwest of Phoenixville.)

TEXAS

Dr. Guthrie of Scotland to Lecture in Galveston.—Dr. Douglas Guthrie, medical historian of the University of Edinburgh, who is visiting medical centers in the United States, after a tour of Australia and New Zealand, will give the address "The Pursuit of the Infinitely Small," which deals with the history of the microscope, at the University of Texas Medical Branch, Galveston, March 19. He will also present a special lecture on "Ancient Drugs and Herbals." Dr. Guthrie will deliver the Logan Clendening lectures at the University of Kansas, Lawrence and Kansas City, Kan., March 29-31.

Clinical Conference.—The Dallas Southern Clinical Society will hold its annual clinical conference March 15-18 at the society headquarters in the Medical Arts Building. Guest speakers include Drs. Willard M. Allen and Charles H. Eyermann, St. Louis; Drs. William B. Bean and Alson E. Braley, Iowa City; Dr. Edward G. Billings, Denver; Dr. William L. Bradford, Rochester, N. Y.; Drs. Ormond S. Culp and Thomas J. Dry, Rochester, Minn.; Dr. Clarence Dennis, Brooklyn; Dr. Hugh F. Hare, Los Angeles; Dr. Anderson C. Hilding, Duluth; Dr. Samuel F. Marshall, Boston; Dr. Paul E. McMaster, Beverly Hills, Calif.; Dr. George T. Pack, New York; Dr. John L. Parks, Washington, D. C.; Dr. Douglas H. Sprunt, Memphis, Tenn.; Dr. C. Dwight Townes, Louisville, Ky.; and Dr. Walter P. Work, San Francisco. In addition to their individual presentations, the guests will participate in panel discussions on recent developments in cancer, diabetes, emotional problems of the menopause, respiratory problems of the newborn period, diagnosis and treatment of benign breast lesions, cardiac catheterization, drug allergies, internal versus external fixation of fractures, and complications of labor.

WISCONSIN

Harris Obstetrical Society.—The John Warton Harris Obstetrical Society was organized Sept. 5-6, 1953, by former residents trained by Dr. John W. Harris, professor of obstetrics and gynecology, University of Wisconsin Medical School, and chairman, department of obstetrics and gynecology, Wisconsin General Hospital, Madison. Membership is limited to residents trained by Dr. Harris and members of his department. The following officers were elected: president, Dr. Madeline J. Thornton, Madison, president-elect, Dr. E. Russell Muntz, Ada, Okla., and secretary-treasurer, Dr. Alice D. Watts, Milwaukee.

State Society Offers Postgraduate Courses.—The Medical Society of the State of Wisconsin presents a series of postgraduate courses in cooperation with the Wisconsin State Board of Health, University of Wisconsin Medical School, Marquette University School of Medicine, Wisconsin Academy of Gen-

eral Practice, Wisconsin Heart Association, Wisconsin division, American Cancer Society, Wisconsin Anti-Tuberculosis Association, and the Wisconsin chapter, American Arthritis and Rheumatism Foundation. In March Dr. Robert C. Parkin, director of postgraduate education, University of Wisconsin Medical School, Madison, will serve as moderator for the following program, which will be held from 2 to 5:30 p. m., March 16 in Monroe (Turner Hall), March 17 in Kenosha (Elks Club), and March 18 in Portage (Elks Club):

Problems of Growth, Including Adolescence, Thomas V. Geppert, Madison.

Management of Cardiovascular Problems, Mischa J. Lustok, Milwaukee. Diagnosis and Treatment of Vaginitis and Cancer of the Cervix, Edward D. Allen, Chicago.

Early Management of the Acute Head Injury, Alfred Uihlein, Rochester, Minn.

The April program in Eau Claire, Stevens Point, and Appleton will feature related diseases of the chest, and in Platteville, Oconomowoc, and Manitowoc, child nutrition, ankle fractures, maternal mortality, and diabetes. Each program will be followed by dinner and an evening session. Reservations (\$6 including dinner for each clinic) may be made through the State Medical Society of Wisconsin, Box 1109, Madison.

GENERAL

Deadline for Radiology Examinations.—The American Board of Radiology announces that May 1 is the deadline for filing applications for the fall examination, which will be held during the week of Sept. 13 in Washington, D. C.

Memorial Volume.—The *Journal of Neuropathology and Experimental Neurology* issues its January number as a memorial volume to Dr. Joseph H. Globus, New York, one of its founders, who was executive editor for 11 years. Dr. Globus, who was born in Russia, came to New York and was graduated from Cornell University Medical College. After World War I, in which he served as captain in the Medical Corps, U. S. Army, he was awarded the Blumenthal Research Fellowship at Mount Sinai Hospital with which he was affiliated until his death Nov. 19, 1952.

College of Physicians Postgraduate Courses.—The American College of Physicians has announced its spring postgraduate courses. A course in clinical gastroenterology is scheduled at Louisiana State University School of Medicine, New Orleans, March 15-19. The guest faculty includes: Dr. David Cayer, Winston-Salem, N. C., Dr. Donald F. Marion, Miami, Fla., Dr. Eddy D. Palmer, Washington, D. C., Dr. H. Marvin Pollard, Ann Arbor, Mich., and Dr. Julian M. Ruffin, Durham, N. C. March 22-26, selected subjects in internal medicine will be offered at the Columbia-Presbyterian Medical Center, New York, with Drs. Franklin M. Hanger and Robert F. Loeb as co-directors; fees are \$30 for college members and \$60 for non-members.

Southern States' Special Train to San Francisco.—Announcement is made of the "Southern A. M. A. Special" tour for physicians and their families to the American Medical Association's meeting in San Francisco, June 21-25. The 8,000 mile tour includes the Canadian Rockies, California, and Mexico, a 20-day vacation with 5 days in San Francisco for the convention. The tour, which leaves Atlanta at 10 a. m. June 13 and returns to Atlanta at 8:35 a. m. July 2, will cost \$445 (plus tax). It includes stops in New Orleans, San Antonio, Texas, Juarez, Mexico, and the Grand Canyon. The post-convention itinerary includes Seattle, Vancouver, B. C., and Banff and Lake Louise in the Canadian Rockies. Information may be obtained from Moyers Travel Bureau at the Bank of Georgia, 34-38 Peachtree St., Atlanta.

Fellowship in Dermal Pathology.—The Earl D. Osborne fellowship in dermal pathology, sponsored by the American Academy of Dermatology and Syphilology, will provide annually for one year the opportunity for study and training in dermal pathology to a postgraduate student who has completed satisfactorily at least two years of training in dermatology or one of its allied branches in accordance with the requirements of the American Board of Dermatology and Syphilology. A stipend of \$2,500 will be given to the candidate selected. The

period of training, which will be accredited by the board, will be spent at the Armed Forces Institute of Pathology, Washington, D. C. Dermatologists in training may obtain application blanks for the fellowship from Dr. Hamilton Montgomery, Chairman, Committee on Pathology, American Academy of Dermatology and Syphilology, 102-110 Second Ave., S. W., Rochester, Minn. The next appointment available begins July 1.

Surgeons Meet at French Lick.—A sectional meeting of the American College of Surgeons will be held at the French Lick Springs Hotel, French Lick, Ind., March 15-17. A session dealing with causes of suits for malpractice and methods for their prevention has been scheduled, as has a clinicopathological conference with symposiums on trauma and cancer, and panel discussions on evaluation of gynecological procedures, intestinal obstruction, nutrition and preoperative and postoperative care in the aged, and indications for and operative methods in the open treatment of fractures. The program of the dinner meeting Monday will include the address "Thinkin' Tall" by Kenneth McFarland, Ph.D., Topeka, Kan., educational consultant, General Motors. Those interested in accommodations on a special train from Chicago, arriving at French Lick on Saturday, should communicate with Miss Eunice Morrill, American College of Surgeons, 40 E. Erie St., Chicago 11 (MOhawk 4-4050).

Fellowships in Psychiatric Care of the Disabled.—The National Foundation for Infantile Paralysis has a number of fellowships available to psychiatrists interested in the emotional problems of the physically disabled, particularly of the poliomyelitis patient with respiratory paralysis. Requirements include two years of graduate training in psychiatry acceptable to the American Board of Psychiatry and Neurology. Financial benefits are based on individual needs. Appointments will be made for one year, subject to renewal. The programs of the fellows should be undertaken in a center concerned with rehabilitation of the physically disabled, which has affiliations with an approved department of psychiatry. The department is to be responsible for supervision and training of the fellows. An opportunity for working with poliomyelitis patients with respiratory difficulties should be available. For information and application forms write: Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

American Radium Society.—The annual meeting of the American Radium Society will be held at the Homestead, Hot Springs, Va., March 14-16. The Monday morning session will open at 9 a. m. with a symposium on cancer of the lung, for which Dr. Paul E. Rekers, Los Angeles, will serve as moderator and Drs. Samuel H. Rosen, Washington, D. C., John L. Pool, New York, Theodore P. Eberhard, Philadelphia, and Thomas Watson, as collaborators. The Janeway lecture, "Education in Radiation Protection," will be delivered by Lauriston S. Taylor, Ph.D., chief, Atomic and Radiation Physics Division, National Bureau of Standards, Washington, D. C., during the luncheon session, 12:15-2:15 p. m. The annual banquet will be held at 7 p. m. The Tuesday symposium (9 a. m.) on treatment of nasopharyngeal neoplasms will have as moderator Dr. Douglas Quick, New York, and as collaborators Drs. Higdon B. Elkins, Iowa City, Clifford L. Ash, Toronto, Canada, James W. J. Carpender, Chicago, Isadore Lampe, Ann Arbor, Mich., and Robert J. Bloor, Rochester, N. Y.

Kimble Methodology Research Award.—The University of Washington School of Medicine, Seattle, invites nominations before May 15 for the third Kimble methodology research award, which will be presented in October 1954 through the generosity of the Kimble Glassware Division of Owens-Illinois Co. The award, consisting of \$500 and a plaque, is administered by committees of the Conference of State and Provincial Public Health Laboratory Directors. Names of candidates from the United States, its territories, and Canada may be submitted. The candidate's work should be either a fundamental contribution that serves as a base line for development of diagnostic methods that fall within the province of the public health laboratory or the adaptation of a fundamental contribution to make it of use in a diagnostic laboratory. The work should

MEETINGS

have been completed since Jan. 1, 1949. Consideration will be given to nominations only if they are covered by (1) a reprint or a summary with bibliography and (2) a statement of the considerations that justified the recommendations of the study. Nominations should be sent to Alfred S. Lazarus, Ph. D., Chairman, School of Medicine, University of Washington, Seattle 5.

Conference on Chronic Illness.—The National Conference on Care of the Long-Term Patient will be held at the Edgewater Beach Hotel, Chicago, March 18-20, under the auspices of the Commission on Chronic Illness and the sponsorship of the American Medical Association, the American Hospital Association, the American Public Health Association, the American Public Welfare Association, and the U. S. Public Health Service. Mr. Leonard W. Mayo, commission chairman, will give the keynote speech Thursday, 10 a. m., after which conference orientation will be given by Dr. Dean W. Roberts, Baltimore, director of the commission. The following committees will coordinate the findings of the 20 discussion groups which will hold simultaneous meetings:

Committee I, The Patient at Home, Chairman, Dr. Martin Cherkasky, New York.

Committee II, The Patient in an Institution, Chairman, Anthony J. J. Rourke, New York.

Committee III, Integration of Facilities and Services, Chairman, Milton Terris, Buffalo.

Committee IV, Research, Chairman, Thomas Parran, Pittsburgh.

Committee V, Financing, Chairman, Theodore G. Klumpp, New York.

The reports of the five committee chairmen, combining the discussion group reports, will be presented from 11:15 a. m. to 1 p. m. Saturday. On Thursday at 7 p. m. Dr. Edwin S. Hamilton, Kankakee, Ill., vice-chairman of the commission, will preside at the banquet, after which the following will speak for their associations: Dr. George F. Lull, Chicago, (American Medical Association); Dr. Edwin L. Crosby, Chicago, (American Hospital Association); Dr. Herman E. Hilleboe, Albany, N. Y., (American Public Health Association); Miss Loula Dunn, (American Public Welfare Association); and Dr. Leonard A. Scheele, Washington, D. C., (U. S. Public Health Service).

FOREIGN

Otorhinolaryngologists Meet in Düsseldorf.—The 25th annual meeting of the German Society of Otorhinolaryngologists will be held June 2-5 in Düsseldorf. The subjects for discussion will be "Accidental Injuries of Nose and of Nasal Sinuses" and "Hearing Aids."

Centennial Celebrations in Germany.—The 100th anniversaries of the birth of two German Nobel prize winners, Dr. Paul Ehrlich and Dr. Emil von Behring, will be observed March 13-16 in Frankfurt-on-the-Main and in Marburg-Lahn, Germany. Dr. Ehrlich, who discovered arsphenamine (Salvarsan) in 1909, and Dr. von Behring, whose work in passive immunization laid the foundation for serum therapy and protective inoculation, will be honored at the commemorative services in St. Paul's Cathedral in Frankfurt. The Paul Ehrlich prize will be conferred on Prof. Ernst Boris Chain, in 1945 co-winner with Sir Alexander Fleming and Sir Howard Florey of the Nobel prize for physiology and medicine for the discovery of penicillin. Dr. Chain, formerly of Oxford University and presently scientific director of the International Research Centre for Chemical Microbiology in Rome, Italy, will speak on the development of antibiotic chemotherapy. The celebration will terminate with a scientific meeting in Höchst, in which several hundred physicians, chemists, and other scientists of European and overseas countries will participate.

CORRECTION

American College of Physicians.—In the list of meetings in THE JOURNAL, Feb. 27, page 775, the announcement of the meeting for the American College of Physicians was erroneous. This organization will meet in Chicago, April 5 to 9, at the Conrad Hilton Hotel. Mr. E. R. Loveland, 4200 Pine Street, Philadelphia 4, is the executive secretary.

AMERICAN MEDICAL ASSOCIATION; Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1954 Annual Meeting, San Francisco, June 21-25.

1954 Clinical Meeting, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Mobile, April 15-17. Dr. Douglas L. Cannon, 537 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ACADEMY OF NEUROLOGY, Shoreham Hotel, Washington, D. C., April 29-May 1. Dr. Alexander T. Ross, 1040 West Michigan St., Indianapolis 7, Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Hotel Galvez, Galveston, Texas, April 7-9. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE, Hotel Taft, New Haven, Conn., May 6-8. Dr. Samuel X. Radbill, 7043 Elmwood Ave., Philadelphia 42, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, Ambassador Hotel, Atlantic City, N. J., April 11-15. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, Philadelphia, Pa., April 8-10. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 6-8. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN ASSOCIATION FOR THE STUDY OF NEOPLASTIC DISEASES, Lord Baltimore Hotel, Baltimore, April 29-30. Dr. Bruce H. Sisler, P. O. Box 268, Gatlinburg, Tenn., Executive Secretary.

AMERICAN ASSOCIATION FOR THORACIC SURGERY, Sheraton-Mt. Royal Hotel, Montreal, Canada, May 3-5. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Roney Plaza Hotel, Miami Beach, Fla., April 5-10. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN COLLEGE OF PHYSICIANS, Conrad Hilton Hotel, Chicago, April 5-9. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., April 13-17. Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secretary.

AMERICAN FEDERATION FOR CLINICAL RESEARCH, Haddon Hall, Atlantic City, N. J., May 2. Dr. Lawrence E. Hinkle Jr., 525 East 68th St., New York 21, Secretary.

AMERICAN GOUTER ASSOCIATION, The Somerset, Boston, April 29-May 1. Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N. Y., Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN PEDIATRIC SOCIETY, The Inn, Buck Hill Falls, Pa., May 3-5. Dr. A. C. McGuinness, 237 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Ambassador Hotel, Atlantic City, N. J., April 10-16. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

AMERICAN PSYCHIATRIC ASSOCIATION, St. Louis, May 3-7. Dr. R. Finley Gayle Jr., 6300 Three Chopt Road, Richmond 21, Va., Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN RADIUM SOCIETY, The Homestead, Hot Springs, Va., March 14-16. Dr. Robert E. Fricke, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, Atlantic City, N. J., April 12-16. Dr. Philip Handler, Duke University, Durham, N. C., Secretary.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION, Haddon Hall, Atlantic City, N. J., May 3. Dr. William M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, Atlantic City, N. J., April 12-16. Dr. Cyrus C. Erickson, 874 Union Ave., Memphis 3, Tenn., Secretary.

AMERICAN SOCIETY OF MAXILLOFACIAL SURGEONS, Washington, D. C., April 25-28. Dr. Casper M. Epstein, 25 East Washington St., Chicago 2, Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Atlantic City, N. J., April 12-16. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

AMERICAN SURGICAL ASSOCIATION, Hotel Cleveland, Cleveland, April 28-30. Dr. R. Kennedy Gilchrist, 59 East Madison St., Chicago 3, Secretary.

ARIZONA MEDICAL ASSOCIATION, San Marcos Hotel, Chandler, April 25-28. Dr. Dermont W. Melick, 541 Security Bldg., Phoenix, Secretary.

ARKANSAS MEDICAL SOCIETY, Goldman Hotel, Fort Smith, April 19-21. Dr. J. J. Monfort, 215 Kelley Bldg., Fort Smith, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS, Chalfonte-Haddon Hall, Atlantic City, N. J., May 4-5. Dr. W. Barry Wood Jr., 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

CONFERENCE ON MICROCIRCULATORY PHYSIOLOGY AND PATHOLOGY, University of Texas, Galveston, Texas, April 8-9. Dr. Edward H. Bloch, Western Reserve University School of Medicine, Dept. of Anatomy, Cleveland 6, Chairman.

CONNECTICUT STATE MEDICAL SOCIETY, Bulkeley High School, Hartford, April 27-29. Dr. Creighton Barker, 160 St. Ronan St., New Haven, Executive Secretary.

DALLAS SOUTHERN CLINICAL SOCIETY, Dallas, March 15-18. Dr. T. Haynes Harvill, 433 Medical Arts Bldg., Dallas 1, Texas, Secretary.

EASTERN SECTION, AMERICAN CONGRESS OF PHYSICAL MEDICINE, Newark, N. J., April 10. Dr. H. L. Rudolph, 400 North Fifth St., Reading, Pa., Secretary.

EASTERN STATES HEALTH EDUCATION CONFERENCE, New York Academy of Medicine, New York, April 29-30. Dr. Iago Galdston, 2 East 103d St., New York 19, Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, Convention Hall, Atlantic City, N. J., April 12-16. Dr. M. O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

FLORIDA MEDICAL ASSOCIATION, Hollywood Beach Hotel, Hollywood, April 25-28. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

GEORGIA MEDICAL ASSOCIATION OF, Hotel Dempsey and Macon Auditorium, Macon, May 2-5. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

INDUSTRIAL HEALTH CONFERENCE, Hotel Sherman, Chicago, April 24-30. Dr. E. C. Holmblad, 28 East Jackson Blvd., Chicago 4, Managing Director.

INDUSTRIAL MEDICAL ASSOCIATION, Hotel Sherman, Chicago, April 27-30. Dr. Arthur K. Peterson, 28 East Jackson Blvd., Suite 1300, Chicago 4, Secretary.

IOWA STATE MEDICAL SOCIETY, Des Moines, April 25-28. Dr. Allan B. Phillips, 529 36th St., Des Moines 12, Secretary.

ISTHMIAN CANAL ZONE, MEDICAL ASSOCIATION OF THE, El Panama Hotel, Panama City, R. P., March 24-26. Dr. I. Robert Berger, Box "A," Balboa Heights, Canal Zone.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 11-16. Dr. Eugene H. Doble Jr., John A. Andrew Memorial Hospital, Tuskegee Institute, Ala., Secretary.

KANSAS MEDICAL SOCIETY, Hotel Jayhawk, Topeka, May 2-6. Dr. D. D. Vermillion, 315 West Fourth St., Topeka, Secretary.

MARYLAND, MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF, Baltimore, April 27-28. Dr. Everett S. Diggs, 1211 Cathedral St., Baltimore, Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, April 4-7. Dr. E. Royce Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CONFERENCE ON CARE OF THE LONG-TERM PATIENT, Edgewater Beach Hotel, Chicago, March 18-20. Dr. Dean W. Roberts, 615 N. Wolfe St., Baltimore 5, Director.

NORTH CAROLINA, MEDICAL SOCIETY OF THE STATE OF, Hotel Carolina, Pinehurst, May 3-5. Dr. Millard D. Hill, 203 Capital Club Bldg., Raleigh, Secretary.

NORTH DAKOTA STATE MEDICAL ASSOCIATION, Grand Forks, May 1-4. Mr. Lyle A. Limond, Box 1198, Bismarck, Executive Secretary.

OHIO STATE MEDICAL ASSOCIATION, Columbus, April 13-15. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

PACIFIC NORTHWEST SOCIETY OF PATHOLOGISTS, Amphitheater, Dept. of Pathology, University of Washington School of Medicine, Seattle, April 23-24. Dr. John L. Whitaker, 315 South K St., Tacoma 3, Wash., Secretary.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS: TOPEKA, KANS., March 19. Dr. William C. Menninger, 3617 West 6th Ave., Topeka, Kansas, Governor.

RHODE ISLAND MEDICAL SOCIETY, Rhode Island Medical Society Library, Providence, May 4-5. Dr. Thomas Perry Jr., 106 Francis St., Providence 3, Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

FRENCH LICK SPRINGS, Indiana, French Lick Springs Hotel, March 15-17. Dr. Carl H. McCaskey, 20 N. Meridian St., Indianapolis 4, Chairman.

MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.

SOCIETY OF AMERICAN BACTERIOLOGISTS, William Penn Hotel, Pittsburgh, May 2-7. Dr. John Hays Bailey, Sterling-Winthrop Research Institute, Rensselaer, N. Y., Secretary.

SOCIETY OF NEUROLOGICAL SURGEONS, The Waldorf Astoria, New York, April 23-24. Dr. Edgar F. Fincher, Emory University, Ga., Secretary.

SOCIETY FOR PEDIATRIC RESEARCH, Buck Hill Falls Inn, Buck Hill Falls, Pa., May 4-6. Dr. Sydney S. Gellis, 330 Brookline Ave., Boston 15, Secretary.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

STUDENT AMERICAN MEDICAL ASSOCIATION, Sherman Hotel, Chicago, May 1-3. Mr. Russell F. Staudacher, 535 N. Dearborn St., Chicago 10, Executive Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, Nashville, April 18-21. Mr. V. O. Foster, 706 Church St., Nashville 3, Executive Secretary.

TEXAS MEDICAL ASSOCIATION, Gunter Hotel, San Antonio, May 3-5. Dr. J. M. Travis Sr., 1801 Lamar Blvd., Austin, Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Albuquerque, N. Mex., April 6-9. Sidney B. Clark, 314 U. S. Court House, El Paso, Texas, Secretary.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION, Hotel Biltmore, Los Angeles, May 8. Dr. Edward J. Zaik, 740 S. Olive St., Los Angeles 14, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ontario, Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Tisiologia, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirmot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitaire d. O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6°, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Caccuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentine, April 21-28, 1954. Dirección General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentine.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 13-17, 1954. Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands, General Secretary.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de México, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida, Cuauhtemoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12^e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geoffroy, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8^o andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigaderio Luiz Antonio 651, Sao Paulo, Brazil.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION CONGRESS, Lake Garda, Italy, Sept. 15-21, 1954. Dr. Ada Chree Reid, 118 Riverside Drive, New York 24, N. Y., U. S. A., President.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8^o andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8^o andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. P. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pleter Lastmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various Centers, July 16. Final date for filing applications was Jan 16. Sec., Dr. Curtiss B. Hickox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written*. Various centers, Sept. 2. *Oral*. Ann Arbor, Oct. 15-18. To be eligible candidates must have completed thirty-six months of training by October 1. Final date for filing application is May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Chicago, April 1-3 (candidates in the Midwest). Los Angeles, June 15-17 (candidates west of the Rocky Mountains and west coast). The closing date for acceptance of applications for Chicago and Los Angeles was Feb. 1. New York, Sept. 22-24 (candidates on the east coast). The closing date for acceptance of applications will be April 1. *Written*. Oct. 18. Final date for acceptance of applications will be May 1. *Subspecialties*. Cardiovascular Disease, Chicago, April 1. Gastroenterology, Chicago, April 2-3. The closing date for acceptance of applications for the subspecialties was Jan. 15. Exec. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May or June. Final date for filing application was Jan. 15. Sec., Dr. Leonard T. Furlow, 600 S. Kingshighway, St. Louis 10.

AMERICAN BOARD OF NEUROLOGY AND PSYCHIATRY: *Psychiatry and Neurology*. Chicago, April 29-30. Final date for filing application was Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II*. Chicago, May 10-17. Final date for filing application is April 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical examinations, 1954*. San Francisco, June 25-29; New York City, Dec. 5-9. Final date for filing applications was July 1, 1953. *Written, 1955*. Various cities, Jan. 24-25. Final date for filing application is July 1, 1954. *Practical examinations, 1955*. Philadelphia, June 10-15; Chicago, Oct. 9-14. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Boston, May 17-21. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: San Francisco, June 17-19. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago 11.

AMERICAN BOARD OF PEDIATRICS: *Oral*. Des Moines, March 19-21; New York City, May 1-3; San Francisco, June 25-27; Chicago, Oct. 8-10 and New Haven, December.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION. *Oral and Written*. Washington, D. C., Sept. 5-6. Final date for filing applications is March 31. Sec., Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Entire Examination*. Galveston, April 17-19. Final date for receipt of case reports was Jan. 1. Final date for receipt of case reports for the fall 1954 examination is June 1, 1954. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PROCTOLOGY: *Part I*. Kansas City, Philadelphia and San Francisco, May 8. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 13-14; New Orleans, Feb. 28-March 1, 1955; San Francisco, Mid-October, 1955; New York City, December, 1955. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minnesota.

AMERICAN BOARD OF RADIOLOGY: *Oral*. Spring 1954. Final date for filing application was Dec. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

DEATHS

Kress, George Henry ☉ Los Angeles; born in Cincinnati Dec. 23, 1874; Medical College of Ohio, Cincinnati, 1899; an Associate Fellow of the American Medical Association, of which he was fourth vice-president, 1919-1920, and member of its House of Delegates, 1912-1913, 1918, and 1942; secretary of the Medical Society of the State of California; past secretary and president of the California Medical Association and the Los Angeles County Medical Association; past president of the State Commission to Investigate Tuberculosis of California, Los Angeles Academy of Ophthalmology and Otolaryngology, and the Los Angeles Tuberculosis Society, member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; professor emeritus of ophthalmology at College of Medical Evangelists; secretary of the faculty, College of Medicine, University of Southern California, 1906-1909; professor of hygiene and secretary of the faculty, Los Angeles Medical Department, University of California from 1909 to 1914, when he became dean, serving until 1938; served as chairman of the Los Angeles County Health Department and as member of the state board of health; formerly chairman of the eye and ear committee of the Los Angeles city schools; for many years on the staff of the Los Angeles County Hospital; editor of *California and Western Medicine* from 1927 to 1946; formerly editor of the *Journal of Phi Rho Sigma*; died in California Hospital Jan. 18, aged 79, of coronary occlusion.

Sparkman, Edward Heriot Jr. ☉ Captain, U. S. N., retired, Charleston, S. C.; born in Charleston, S. C., Jan. 22, 1880; Medical College of the State of South Carolina, Charleston, 1904; fellow of the American College of Surgeons; member of the South Carolina Medical Association; formerly on the faculty of his alma mater; for four years assistant visiting surgeon at the Roper Hospital; in September, 1916, appointed an assistant surgeon; National Naval Volunteers, U. S. N., and was serving as a lieutenant commander, Naval Reserve Force, at the time of his release from active duty in September, 1919; requested and was ordered to active duty in 1921; later transferred to the Medical Corps of the regular Navy with the rank of lieutenant; promoted to Captain, Medical Corps, U. S. N. in June, 1942; transferred to the retired list of officers Feb. 1, 1944; retained on active duty until October, 1945; a veteran of World Wars I and II and of more than 30 years of Naval service; served at the Naval hospitals, Charleston, S. C., Canacao, P. I., Norfolk, Va., Mare Island, Calif., at the Naval Academy, Annapolis, Md., with the First Marine Brigade, Port Au Prince, Haiti, and in the U. S. ships, Seattle, Patricia, Barker, Mercy, Hatfield, Dobbin, Milwaukee, and Melville; died Jan. 21, aged 73.

Frescoln, Leonard Davis ☉ Philadelphia; born in Philadelphia March 25, 1878; University of Pennsylvania Department of Medicine, Philadelphia, 1904; an Associate Fellow of the American Medical Association; member of the American Academy of Orthopaedic Surgeons; fellow of the International College of Surgeons; formerly on the faculty of his alma mater; taught at the Philadelphia College of Pharmacy and Science, where he was a member of the board of trustees; a lieutenant in the Medical Corps of the first infantry of the Pennsylvania National Guard; guard officer during the Mexican border campaign; served during World War I; author of several books; affiliated with the Episcopal Hospital, Presbyterian Hospital, Hospital of the University of Pennsylvania, and the Philadelphia General Hospital, where he died Jan. 24, aged 75, of coronary disease.

Swift, Walker Ely ☉ Sarasota, Fla.; born in New York Jan. 7, 1894; Columbia University College of Physicians and Surgeons, New York, 1919; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; for many years practiced in New York City, where he was on the faculty of New York

Polyclinic Medical School and Hospital and on the staff of the Lenox Hill Hospital; served on the staffs of the Elizabeth A. Horton Memorial Hospital in Middletown, N. Y., Sharon (Conn.) Hospital, and the Englewood (N. J.) Hospital; on the staff of the Sarasota Municipal Hospital; died Dec. 22, aged 59, of arteriosclerotic heart disease.

McCutchen, Robert Othello, Bishopville, S. C.; born Nov. 11, 1880; University of Maryland School of Medicine, Baltimore, 1907; past president and vice-president of the Lee County Medical Society; for eight years mayor of Bishopville; chairman of the board of trustees of the Bishopville Public Schools from 1910 to 1922; from 1916 to 1918 a member of the Selective Service Board and medical examiner of selectees; at one time county physician; for many years surgeon for the Atlantic Coast Line Railroad; for 28 years a trustee of the University of South Carolina, Columbia, during which time he served as both vice-chairman and chairman of the board; died in the Lee County Memorial Hospital Jan. 4, aged 73.

Hoffman, John Ludwig ☉ Fort Lauderdale, Fla.; born in Sharon Springs, N. Y., Jan. 27, 1897; University of Buffalo School of Medicine, 1924; member of the Medical Society of the State of New York; first president of the Western New York State Heart Association, reelected to a second term; for many years practiced in Buffalo, where he was attending physician at the Millard Fillmore Hospital and medical examiner for the John Hancock Mutual Life Insurance Company; later assistant medical director of the company's home office in Boston; served during World Wars I and II; died in Coral Gables Dec. 25, aged 56, of hypertension and cardiovascular renal disease.

Bohrer, Eldon Claude ☉ West Plains, Mo.; born in Olden, Mo., Aug. 17, 1892; Washington University School of Medicine, St. Louis, 1922; also a pharmacist; member of the American Trudeau Society and the American Academy of General Practice; president of the Missouri State Medical Association, serving as its councilor from 1938 until 1952; past director of the Missouri Tuberculosis Association and the Missouri Cancer Society; a school board member for 15 years, 12 of which he served as president of the board; for two years president of West Plains Library Board; trustee of the Missouri Medical Service; died in St. John's Hospital in Springfield Jan. 20, aged 61, of coronary heart disease.

Chapman, Vernon Alaska, Palm Springs, Calif.; Baltimore Medical College, 1898; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; at one time practiced in Muskegon, Mich., where he was on the staff of Hackley Hospital; from 1921 to 1936 assistant clinical professor of ophthalmology at Marquette University School of Medicine in Milwaukee; consulting ophthalmologist and otologist at Milwaukee County Hospital in Wauwatosa, Wis.; died in Manitowoc, Wis., Jan. 15, aged 80 of myocardial infarction and coronary sclerosis.

Smith, Robert Arvil ☉ New Castle, Ind.; born in Greensboro, Ind., Sept. 11, 1902; Indiana University School of Medicine, Indianapolis, 1926; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; for many years secretary of the Henry County Medical Society; in 1953 elected president of the Indiana Academy of Ophthalmology and Otolaryngology; served during World War II; on the staff of the Henry County Hospital, where he died suddenly Dec. 7, aged 51, of myocardial infarction and coronary thrombosis.

Anderson, Charles Cleveland ☉ Venus, Texas; St. Louis College of Physicians and Surgeons, 1913; also a pharmacist; past president of the trustees for the Venus schools; served as director and vice-president of the Citizens Bank of Venus; died Jan. 16, aged 67, of myocardial infarction.

Baker, Charles Howard ☉ Chilhowie, Va.; University of Virginia Department of Medicine, Charlottesville, 1900; an Associate Fellow of the American Medical Association; died in Donaldsonville, Ga., Jan. 12, aged 79, of chronic cardiovascular disease.

Bauer, Charles Edward ☉ Poughkeepsie, N. Y.; Cornell University Medical College, New York, 1928; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; served during World War II; on the consulting staff, Northern Dutchess Health Service Center in Rhinebeck and New York Eye and Ear Infirmary in New York; on the attending staff of Vassar Brothers Hospital, where he died Dec. 9, aged 61, of coronary occlusion with myocardial infarction.

Bowyer, Franklin Fleetwood, Franklin Lakes, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; formerly practiced in Jersey City, where he was affiliated with the Christ Hospital; died in St. Joseph's Hospital, Paterson, Dec. 30, aged 85, of general arteriosclerosis and diverticulitis of the colon.

Braitman, Louis ☉ Detroit; University of Michigan Medical School, Ann Arbor, 1931; on the staff of the Grace Hospital; died Jan. 23, aged 45, of dissecting aortic aneurysm and arterial hypertension.

Britt, Otis Winfield ☉ Mexico Beach, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1923; died in Columbus, Ga., Dec. 29, aged 57, of coronary thrombosis.

Buck, Charles Bentley ☉ Mercedes, Texas; Kansas Medical College, Medical Department of Washburn College, Topeka, 1904; veteran of the Spanish-American War; on the staff of the McCalip Ivy Hospital, Weslaco, where he died Dec. 20, aged 84, of coronary occlusion.

Duffy, Edward James, Dayton, Ohio; St. Louis University School of Medicine, 1925; affiliated with Good Samaritan Hospital, Miami Valley Hospital, and St. Elizabeth Hospital, where he died Jan. 16, aged 55, of pneumonia.

Du Pree, Frederick Friebele ☉ Knoxville, Tenn.; University of Tennessee College of Medicine, Memphis, 1919; member of the American Psychiatric Association; until 1942 affiliated with the Veterans Bureau; for many years affiliated with the Eastern State Hospital; died Jan. 21, aged 63, of coronary thrombosis.

Dye, Henry Clay, Cincinnati; Barnes Medical College, St. Louis, 1904; practiced in Waynesburg, Ky.; died Jan. 8, aged 86, of pneumonia.

Fitzgerald, Thomas Francis ☉ Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1891; served on the staff of the Eastern State Hospital; died Jan. 23, aged 87, of carcinoma of the prostate.

Fox, Thomas Joseph, Portland, Ore.; University of Oregon Medical School, Portland, 1909; died Dec. 30, aged 72.

Graham, William Tate ☉ Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1896; since 1948 emeritus professor of orthopedic surgery at the Medical College of Virginia; for many years a member of the state board of health, which he also served as president; co-founder of the Crippled Children's Hospital, where he was surgeon in chief; died in St. Luke's Hospital Dec. 13, aged 80, of acute monocytic leukemia.

Hamma, James Archibald ☉ Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1897; affiliated with the Harrisburg State Hospital; died Dec. 10, aged 77, of cerebral thrombosis.

Hartung, Carl Ferdinand James ☉ Bridgeport, Ala.; Chattanooga (Tenn.) Medical College, 1906; served as mayor; president of the American National Bank of Bridgeport; died Jan. 2, aged 74.

Herring, James Henry, Lewistown, Mont.; University of Louisville School of Medicine, 1930; past president of the Montana State Oto-Ophthalmological Society; formerly a medical missionary in China; on the staff of St. Joseph's Hospital; died Jan. 4, aged 51, of coronary occlusion.

Hodgson, Michael Aloysius, Memphis, Tenn.; Jefferson Medical College of Philadelphia, 1920; for many years associated with the Veterans Administration; died in the Veterans Administration Medical Teaching Group Hospital Jan. 12, aged 59, of coronary heart disease.

Jackson, Frank Cottrell, Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1927; for many years associated with the Veterans Administration; died in the Veterans Administration Center, Dayton, Dec. 19, aged 51, of cancer.

Jorgensen, Palle Peder Marius, Kenosha, Wis.; State University of Iowa College of Medicine, Iowa City, 1898; served during World War I; on the staff of the Kenosha Hospital, where he died Jan. 5, aged 81, of arteriosclerotic heart disease.

Kearby, Harold Donald ☉ Houston, Texas; University of Arkansas School of Medicine, Little Rock, 1938; served during World War II; died Nov. 21, aged 44, of coronary disease.

Kizinski, Alexander Bernard ☉ Welch, W. Va.; St. Louis University School of Medicine, 1935; served during World War II; died Dec. 29, aged 42, of coronary thrombosis.

Lademan, Oscar Emil ☉ Milwaukee; Washington University School of Medicine, St. Louis, 1897; died Dec. 15, aged 76, of cerebral hemorrhage.

Leary, Montgomery Elihu ☉ Rochester, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; served during World War I; at one time Monroe County coroners' physician; formerly medical superintendent of the Camp of the Rochester Public Health Association and the Iola Sanatorium for Tuberculosis, of which he was a founder; affiliated with Highland, Genesee, and St. Mary's hospitals; died Jan. 2, aged 85, of coronary thrombosis.

Lewis, Arthur John, Ruidoso, N. Mex.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1895; served during World War I; died in the Valley Community Hospital, El Paso, Dec. 12, aged 84, of chronic myocarditis and arteriosclerosis.

Lubin, Paul ☉ Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1931; on the staff of the South Baltimore General Hospital; died in Miami Beach, Fla., Dec. 23, aged 47, of coronary thrombosis.

Magee, George Henry, Arlington, Va.; Baltimore Medical College, 1907; died Jan. 14, aged 73, of heart disease.

Malach, Robert Reuben, New York City; Long Island College of Medicine, Brooklyn, 1935; served during World War II; on the staff of the City Hospital and St. Clare's Hospital, where he died Jan. 17, aged 45, of lymphosarcoma.

Morgan, George L., Hankamer, Texas; Memphis (Tenn.) Hospital Medical College, 1899; died in Houston Jan. 4, aged 85, of ventricular fibrillation and pulmonary edema.

Moston, George Tomlinson, Menands, N. Y.; Albany (N. Y.) Medical College, 1890; died in Memorial Hospital, Albany, Oct. 11, aged 88, of lobar pneumonia.

Murray, Paul Andrew, Pittsburgh; University of Pittsburgh School of Medicine, 1925; chief medical examiner of civil service; died in the Shadyside Hospital Jan. 7, aged 59, of cerebral hemorrhage.

Neal, William O., ☉ Chatham Hill, Va.; University of Virginia Department of Medicine, Charlottesville, 1901; died suddenly, Jan. 8, aged 77, of cerebral hemorrhage.

Nicholson, Samuel James, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1893; died in the Fitzgerald-Mercy Hospital, Darby, Dec. 6, aged 84, of cerebral vascular accident.

Olson, Joseph Merrill ☉ Westboro, Mass.; Boston University School of Medicine, 1927; school physician; served during World War II; formerly on the staffs of the Boston City Hospital and Westboro State Hospital; senior physician at the Fairlawn Hospital in Worcester; instantly killed near Walnut, Miss., Dec. 22, aged 51, in an automobile accident.

GOVERNMENT SERVICES

DEPARTMENT OF DEFENSE

Reserve Retirement Points Granted for Aeromedical Convention.—Reserve retirement point credits may be earned by Medical Service Reserve officers on inactive duty for attendance at the Annual Aero Medical Association meeting. This authorization covers eligible physicians, dentists, veterinarians, nurses, women's medical specialists, and Medical Service Corps officers of the U. S. Navy and Air Force. The meeting will open at 9 a. m., Monday, March 29, at the Statler Hotel, Washington, D. C. A three day program of scientific presentations and discussions will follow. Point credits will be awarded to eligible reserve officers on the basis of one point for each day of attendance, provided sessions attended total at least two hours. Each day of the meeting will be considered a session. Included among the subjects to be presented are the aeromedical aspects of jet transport aircraft, crew safety, and effectiveness aboard the new B-52 strategic bomber, noise and vibration problems, development of a personality test battery for psychiatric screening of flying personnel, stress factors affecting combat pilots in Korea, helicopter evacuation of battle casualties, and other topics pertinent to aviation medicine. The convention will be interspersed with two dinners, a business luncheon, and a luncheon for wives. Visiting specialists in aviation medicine will include representatives from Australia, Denmark, Great Britain, Italy, Sweden, Switzerland, and Thailand.

PUBLIC HEALTH SERVICE

Sanitary Engineering Center to Be Dedicated.—The six-story fireproof building in Cincinnati that will house the Sanitary Engineering Center of the U. S. Public Health Service will be dedicated by Mrs. Oveta Culp Hobby, Secretary of the Department of Health, Education, and Welfare, on April 8. The Sanitary Engineering Center, until recently the Environmental Health Center, is the focal point of the federal government's research on how health may be affected by contacts with elements found in air, water, and food, and by radiation and other environmental factors. The structure is located at Columbia Parkway and Grandin Road, about six miles east of downtown Cincinnati and overlooking the Little Miami River. It was authorized by the 80th Congress, in 1948.

The ceremony will be attended by a number of members of Congress who were concerned with the legislation authorizing the building and others who are members of congressional committees that deal with health and public works legislation. Leaders in the fields of sanitary engineering, the biological and physical sciences, public health, industry, and other allied professions from all of the states and territories, will be invited. Scientists from universities and other research institutions will also attend. Dr. Leonard Scheele, Surgeon General, Public Health Service, and Mr. Mark Hollis, Chief Engineering Officer, Public Health Service, will speak, and Mr. Vernon MacKenzie, Officer in Charge of the Sanitary Engineering Center, will be host for the occasion.

On the second day of the program, Oram Woolpert, director, Ohio State Research Foundation, Detlev W. Bronk, president, Rockefeller Institute for Medical Research, Gordon M. Fair, professor of sanitary engineering, Harvard University, and Herman E. Hilleboe, state health commissioner of New York and president of the American Public Health Association, will speak.

On the evening of April 8, at a banquet in the Netherland Plaza Hotel, Abel Wolman, a leading sanitary engineer, will discuss the significance of the new building and its research program.

The Public Health Service's Sanitary Engineering Center is the only laboratory in the nation to attempt a coordinated study of the health significance of physical, chemical and

biological forces in the environment. The program has steadily broadened in scope. To meet present needs the center is turning attention to problems of such water-borne virus diseases as infectious hepatitis; of water-borne toxins generated by algal growths; of hazardous chemicals in the water supply and in the atmosphere; of control of environmental radiation hazards that have been accentuated by the growth of the atomic energy industry; and to the development of rapid, automatic, and economical means for detecting and measuring contaminants in air and water by use of modern electronic techniques. Of particular interest is the center's training program for state and local health workers in advanced sanitation and radiological health subjects. During the past five years 160 training courses have been conducted, attended by more than 6,300 public health specialists from the 48 states and many foreign countries.

Prize for Malaria Research.—G. Robert Coatney, Ph.D., of the Public Health Service's National Institutes of Health, has been named the winner of the Darling Foundation prize for his work on malaria research. Dr. Coatney is head of the chemotherapy section of the laboratory of tropical diseases. He is a graduate of Iowa State University, where he received a doctorate in protozoology. Announcement of the award was made by the Geneva office of the World Health Organization. The prize was established in memory of Dr. Samuel T. Darling, who died in 1925 while making a malaria survey in the Near East for the League of Nations. Co-winner of the award was Prof. George MacDonald, director of the Ross Institute of Tropical Hygiene in London, England.

VETERANS ADMINISTRATION

Appoint Assistant Chief Medical Director.—Dr. Frank B. Brewer has been appointed assistant chief medical director in charge of operations for VA's 171 hospitals and domiciliaries, and 104 clinics to replace Dr. Robert C. Cook, who plans to retire because of ill health. Dr. Brewer will assume the task of coordinating and directing personnel, engineering, supply, patient administration, and other operational activities. He is a native of Tennessee, served in the Army Medical Corps from 1917 to 1920, and, then, became a surgeon with the U. S. Public Health Service. Transferring to the Veterans Bureau in 1921, he served in district offices and hospitals until 1924 when he became manager of the VA hospital at Boise, Idaho. He served successively as manager of VA hospitals at Livermore, Calif., Legion, Texas, and Oteen, N. C., from 1929 until 1946, when he became medical director of the former Atlanta, Ga., branch office. When the branch offices were closed in 1949, he became area medical director for the seven southeastern states. Dr. Brewer is a past president of the Grant County (N. Mex.) Medical Society and of the Southeastern Idaho Medical Society.

Fellowships in Cardiology and Hematology.—Two new fellowships have been established at the Veterans Administration Hospital, 42nd Ave. and Clement St., San Francisco, one a fellowship in cardiology beginning July 1 under the auspices of the San Mateo County Heart Association, the other a fellowship in hematology beginning the same date under the auspices of Stanford University Medical School and the National Institutes of Health. The stipend of either fellowship is \$300 per month. Appointments are for one year and will be renewable for an additional year. The applicant must be a graduate of a class A medical school. Preference will be given to candidates who have adequate previous training in clinical medicine. For information apply to Forrest M. Willett, M.D., chief, medical service.

FOREIGN LETTERS

BRAZIL

Diagnosis of Genitourinary Cancer by Cytological Examination.—In a paper read before the St. Luke's Medical Society of São Paulo, Drs. Melchior Sawaya, Dolirio Sandin, and Luiz Carlos de Almeida presented their studies on cytological examinations of urine sediment. They have made a positive diagnosis of cancer in 10 patients with tumors of the genitourinary tract. In each case the diagnosis was confirmed by clinical and radiological examination. From their experience, they conclude that (1) a thorough examination should be made of the centrifuged sediment of the urine if genitourinary cancer is suspected; (2) the urine must have been passed less than three hours prior to examination; (3) a cytological examination must always be made if the urine shows a large amount of blood (unless the cause is known to be nephritis, calculus, trauma, or hemorrhagic disease); (4) the cytological examination aids in differentiating between cancer, tuberculosis, and cyst of the urinary tract; (5) the cytological examination can reveal cancer cells of tumors of the prostate; (6) the cancer cells found in the urine sediment are apt to show degenerative changes because urine has physical and chemical properties harmful to the cells; (7) it is necessary to observe groups of cells or numerous cells and to study their nuclear characteristics, because of the possibility of completely vacuolized pseudocancer cells being present (the presence of such cells does not rule out cancer); (8) the absence of giant cells of tubercle does not rule out tuberculosis, because they are seldom found (it is necessary to find the tubercle bacilli to make a positive diagnosis of tuberculosis); (9) in patients with lymphosarcomatosis of the urinary tract in addition to the degenerative changes caused by urine, a greater number of nucleoli, mitoses, and hyperchromatic nuclei with more irregular distribution of the chromatin in relation to the smears of the material of the lymph node tumors obtained by aspiration were found; (10) the transitional multinucleated cells of the normal urinary tract must not be confused with the giant cells of tubercle; and (11) the cytological examination of urinary sediment may reveal pus cells, causative agents of infections, and eosinophilic reaction in the parasitic diseases.

ISRAEL

Coxsackie Virus.—According to a report of the Research Council of Israel, H. Bernkopf and S. Levine of the virus laboratory of the Hebrew University and the department of hygiene of the Israel Ministry of Health, succeeded in isolating Coxsackie viruses here. Coxsackie viruses were first isolated from patients during an epidemic of poliomyelitis. They have been recovered from flies and sewage in areas where poliomyelitis was prevalent. Both poliomyelitis and Coxsackie viruses have been isolated from the same patients. The latter have also been isolated from patients with "summer gripe," three day fever, influenza-like fever, and fever of unknown origin. The role of the Coxsackie viruses in all these diseases is not clear as yet. In two illnesses, however, herpangina and pleurodynia, evidence has been produced to show that Coxsackie viruses are the etiological agents. An immunologic study to determine the presence of antibodies to the Coxsackie viruses in sera collected from normal persons of various age groups was also carried out.

Fecal specimens from 111 patients with poliomyelitis have been studied. Ten strains of Coxsackie viruses were isolated, five from 65 patients with paralytic and five from 46 patients with nonparalytic infections. Fecal specimens from 80 patients with a variety of illnesses other than poliomyelitis yielded six strains of Coxsackie viruses. A study of the types of disease from which Coxsackie viruses were recovered revealed a high

percentage of virus isolations from infants whose condition was simply described as "dystrophia." Five of 19 such infants and one of the remaining 61 patients were found to excrete viruses in their stools.

A strain of Coxsackie virus was isolated from an outbreak diagnosed as pleurodynia that occurred in Naot Mordechai in September, 1950. Another strain was isolated during a similar outbreak in Kibbutz Maapil in March, 1951. Both strains belong to group B and appeared to be of the same type, on the basis of cross infection tests, and to have other properties in common. They are considered to be the etiological agents of the outbreaks.

Virus Related to West Nile Virus.—Bernkopf and Levine also reported that from July to September, 1951, a febrile disease in epidemic form occurred near Haifa. Both children and adults were attacked. Fever, symptoms pointing to meningeal involvement, and a rash were present in many of the children. In adults severe headache and general malaise were the main complaints. The temperature remained high for a few days only. Recovery was complete and more rapid in the children than in the adults. From the blood of a 14-year-old sick child a virus was isolated that was pathogenic for mice, hamsters, field mice, and chick embryos. It was filtrable through Seitz filters. Bacteriological examinations of infective material were always negative. A number of passages were carried out in both mice and eggs. In mice the virus was present in highest concentration in the brain. It was also found in the blood and other organs. On histological examination constant changes were present in the brain only, in which destruction of neurons and inflammatory changes were always found. No inclusion bodies could be demonstrated. Mice could be infected by various routes. In the egg the virus produced focal lesions on the membrane and ultimate death of the embryo. The virus was neutralized by antiserum against West Nile virus and, to a lesser degree, by antisera against Japanese B and St. Louis encephalitis viruses. Other antisera were without effect. Immune mice are resistant to intracerebral infection with at least 10^4 lethal doses of a strain of West Nile virus. The virus is closely related to or identical with West Nile virus. Neutralizing and complement fixing antibodies against the isolated strain developed during the disease in a number of patients.

New Physiotherapy and Dental Facilities.—A rehabilitation center, the first of its kind in the country, and including a physical therapy school, is being built at the Asaf Harofe Government Hospital in Sarafand. It will consist of prefabricated Finnish pavilions and will offer modern facilities for electrotherapy, hydrotherapy, occupational therapy, and orthopedic gymnastics to about 100 inpatients and about 120 outpatients. The latter will be able to spend several hours a day in the center. Most of the patients will be partly paralyzed children who have had poliomyelitis. The physical therapy school, which will train qualified physical therapists, also for the first time in this country, will be opened in January, 1954, in anticipation of the opening of the center next April. It will be headed by Miss D. B. Kidd, a British physical therapy specialist, sent to this country for two years by the World Health Organization. The new dental school at the Hebrew University was inaugurated in November, 1953. The first class is composed of 15 locally born young men and women. It is hoped that the goal—graduating classes of 30 each year—may be achieved in the near future.

Chloramphenicol.—The mode of action of chloramphenicol has recently been discussed by E. D. Bergmann and S. Sicher. Two points of attack have been suggested: interference with the utilization of phenylalanine, or with the synthesis of tryptophan from anthranilic acid via indole. In a wild strain of *Escherichia coli*, the inhibition caused by the antibiotic is reversed by tyrosine, phenylalanine, tryptophan, and indole,

but not by anthranilic acid. The synthesis of indole from anthranilic acid is thus the point of attack. This is confirmed by experiments with mutants of *Esch. coli*. The source of the lacking carbon atom that completes the molecule of anthranilic acid to the indole ring is methionine. In the wild strain of *Esch. coli*, the inhibition by chloramphenicol is reversed by the combination of anthranilic acid with methionine and vitamin B₁₂. Methionine has previously been found to be the source of the carbon atom of the purine nucleus and of the methyl group in nicotine. Anthranilic acid is not the immediate precursor of indole. It is first converted into another substance, the nature of which has not yet been determined.

ITALY

Renal Disease.—At the National Convention of Medicine in Rome, Bastai and Crepet supported the classification of nephropathies as (1) those due to decreased function of the arterioles (arteriolopathy), (2) glomerulitis or capillaritis, (3) inflammation of the tubules, and (4) interstitial nephropathy. They have considered the form due to inflammation of the arterioles a nephrosclerosis secondary to a process of hypertension. After a repeated and tenacious hypertensive spasm of the afferent artery, there is a diminution of the glomerular filtering capacity, and a parenchymal renal lesion ensues. Other forms of nephropathy due to inflammation of the arterioles are, besides those due to essential hypertension, those due to periarteritis nodosa, scleroderma, thromboangiitis obliterations, and symmetrical cortical necrosis. On this basis, the renal lesion that is seen in cases of benign or malignant essential hypertension is the consequence and not the cause of the hypertensive syndrome. This concept agrees with the latest works of Clifford Wilson at the University of London.

In two meetings held at the Royal College of Physicians in London in March, 1953, Professor Wilson proved, with his experiments on animals in parabiosis, that a vicious circle is established between the hypertension induced by adrenal cortical stimulation because of adrenal electrolytic imbalance (sodium, etc.) and the renal parenchymal alteration due to spasm of the afferent glomerular arteriole secondary to adrenocortical hypertension. Later, because of a decreased ability of the kidney to cleanse the blood from electrolytic elements that should be expelled, the adrenal cortex receives another impulse to increase the blood pressure, and as a result benign hypertension may change to malignant hypertension. The origin is not, however, in the renal lesion, which, as Clifford proved with his clinical experience, is a consequence of the hypertension and thereafter an aggravating rather than a causative factor. Without the interference of the adrenal, the renal disease would not cause hypertension. In fact, if a bilateral adrenalectomy is performed in an animal and if a parenchymal renal lesion is produced, hypertension does not develop. These interpretations refute the concept of a renal hypertensive factor (renin) as was assumed in the first studies of Goldblatt.

The speakers discussed nephropathies due to inflammatory capillaropathy among which they included hemorrhagic glomerulonephritis, proteinuric glomerulonephritis, renal amyloidosis, and those due to noninflammatory capillaropathy, among which they included diabetic nephropathy, nephropathy of pregnancy, simple arteriosclerotic nephropathy, and nephropathy due to myeloma. At the base there are always alterations of the capillary permeability of the glomerulus, whether these are acute or chronic inflammatory lesions, diffuse or localized. In other words, the glomerulonephritis can be acute or chronic, diffuse or localized. Genuine nephrosis also belongs to the group of the altered permeability of the glomerular capillary. In genuine nephrosis, which by many is attributed to a tubular defect, the proteinuria has always a glomerular cause.

In discussing this paper, Professor Poli asserted that true nephrosis is not a renal disease but a disease of the plasma protein. The altered condition of the plasma proteins in certain diseases causes a nephrosis that could occur also when the glomerulus is not damaged. According to Bastai and Crepet, the renal tubules are involved only in special manifestations of

a lack of reabsorption as for glucose in renal glycosuric diabetes, phosphorus in phosphaturic diabetes, etc. These are true nephropathies due to a primary abnormality of the tubules, but true nephrosis is not a primary disease of the tubules.

LONDON

Economical Prescribing.—A booklet has recently been published and distributed to all family doctors giving a list of the comparative cost of drugs in the National Health Formulary and equivalent proprietary preparations. The *British Medical Journal* of Oct. 24, 1953, included a letter on this subject. It is quoted below, together with certain editorial comments, and they give a picture of just one, more facet of the National Health Service that gives dissatisfaction. The matter has been considered by the General Medical Services Committee, which will discuss it with the Ministry of Health.

"During the past few years I have been trying to discipline myself to prescribe, and my patients to accept, various drugs by their standard names. This has involved the expenditure of some time and a lot of patients, but I imagined that this was worth while because it would save a considerable sum of money for the national Exchequer. Today I have been disillusioned and deflated. According to the list of costs posted to me today by the executive council I find that for many frequently prescribed drugs the proprietary drugs are cheaper than the standard equivalent, and my efforts have only increased the national drug bill.

"I am instructed that in future I must examine the list before writing any prescription and find out which is the cheapest preparation. In some cases, apparently, I must telephone the chemist to ask him whether he has opened a large or small pack of certain proprietary brands before I can decide the cost. I am further informed that arrangements are being made to find out easily whether I prescribe more economically from the list than my colleagues in the same area. I should like to know the estimated cost of the 'machinery' which will undertake this investigation.

"Directors of proprietary drug houses and the doctors who have prescribed their products have been pilloried in the National Press and higher places for a long time. They have been made the scapegoats of the rising national drug bill on entirely false premises.

"Is it not time we made a stand against all this nonsense? Generally speaking, we are a fair-minded and honest profession and we do our best for our patients. The national drug bill will best be reduced by an understanding of the best way in which to use drugs, but we shall never have time to keep up with recent advances if we are forced to spend our time finding ways, like owners of cheapjack stores, to undercut the costs of our colleagues."

The *British Medical Journal* comments that in view of the scathing remarks made from time to time by ministers of health and their political supporters on the large sums said to have been wasted on proprietary preparations, it comes as a surprise to learn that many of them cost less than the non-proprietary equivalent. Apart from the light it throws on the economical prices charged for most proprietary drugs, this booklet will not be of much interest to the great majority of physicians who are careful prescribers.

Medical Needs In Gold Coast.—Commenting on a report by Dr. Ian Fraser, the *British Medical Journal* says that the aim of medical administration in the British colonies has been that the quality of medical care should not be below British standards. In many colonies there are too few doctors to serve the population adequately, and in these the inhabitants cannot have their illnesses treated by qualified men. There is therefore a demand for unqualified practitioners. Dr. Fraser, who visited the Gold Coast last year at the request of the council of the B. M. A., describes the precarious position of the medical services in that colony, which now has a large measure of self-government and is being rapidly developed in other ways. Junior medical officers are required everywhere, and the shortage of specialists in a country that is building a 510-bed hospital is very serious.

Ultimately the Gold Coast's medical needs will be met by African doctors, and Dr. Fraser stresses the necessity for helping the African student and doctor to become well qualified. British medical schools can and do play an important part in training African doctors, but when the new hospitals are opened in the Gold Coast there is going to be a greater need than ever. Where are the specialists to come from? Uncertainty about the period of time which will elapse before the Gold Coast government may feel it can dispense with British doctors causes concern to the medical officers already in the colony and is bound to affect recruitment adversely, but the Gold Coast offers wonderful opportunities to medical men and women who are prepared to put up with disadvantages of life in the tropics and the problems of working for the government of a country subject to rapid economic and political change. Even so, most doctors contemplating service in the Gold Coast will want some assurance that they will not suddenly find themselves discarded. The B. M. A. is consulting the colonial office on this matter. Possibly an eventual solution will be found in the establishment of a Commonwealth Civil Service.

Causes of Visits to Doctors.—The common cold is the principal cause of a visit to or from the doctor, according to a report published by the registrar general. The report deals with the clinical records of eight family physicians during 12 months and says that one in eight of these doctors' patients was treated for a cold. Out of a total of nearly 28,000 patients, 1,485 males and 2,079 females were seen for this reason. Altogether 6,920 consultations were ascribed to the common cold, which, with bronchitis, influenza, and other respiratory diseases, accounted for a large proportion of the total consultations. Among the symptoms causing consultations were a cough, 1,230; headache, 566, mainly among women; and disturbance of sleep, 434. More than 3,000 consultations involved a diagnosis of psychoneurosis. Just over 1,000 were due to respiratory tuberculosis.

The physicians were consulted by about two-thirds of their patients during the year and gave an average of 3.8 consultations for each patient on their lists. Three out of five were by female patients, but, allowing for the preponderance of women on the lists, the excess is reduced to 25%. For male patients 70.7% of consultations were at the doctor's surgery and for female 66.3%. A total of 3,090 patients were referred to hospital outpatient departments, representing rates of 11.3 per 100 patients on the combined lists, 15.9 per 100 patients consulting, and 3 in every 100 consultations.

Encouragement of Private Practice.—At the Annual Representative Meeting of the British Medical Association this year a resolution was adopted deploring the absence of any constructive step toward the encouragement of private practice. The Private Practice Committee of the B. M. A. has been considering this problem. One member urged in the interests of the nation and of the profession that independent private practice should continue in healthy rivalry with the state service. Another considered that the survival of private practice would serve to keep an independent standard before the profession. Although it was suggested that the government was seeking to discourage private practice, it was recognized that official acceptance of a figure of 5% of the population as not participating in the service indicated that private practice was receiving at least passive encouragement. At present possibly the main difference between the two systems is in the way the patient obtains medical attention rather than in any great variation in the medical services provided. It was stressed that the continued existence of private practice depended as much on the economic situation as on public demand. The latter was unlikely to be very great unless marked changes occurred in the National Health Service. Unless such changes did occur it seemed probable that there would be very few private practitioners within a generation.

College of General Practitioners.—This newest British college is now one year old. Applications for foundation membership were invited on Jan. 1, 1953, and within three weeks 1,077 members and 142 associates were enrolled. By the end of six months the membership had almost doubled itself and there

were 130 overseas members. The founding council decided that the college ought not to be medicopolitical and that any political problems it might encounter should be referred to the appropriate committee of the *British Medical Association*. They also determined that the college should not interfere with the work of other medical organizations, but would interest itself in research, and in undergraduate and postgraduate education. In some matters, such as those concerned with group practice, the encouragement of closer ties between general practitioners and hospitals and the provision of adequate diagnostic facilities for all family doctors, the college will work in close association with the B. M. A. The Medical Research Council has set up a working party on which members of the college are serving to investigate the possibilities of clinical research by general practitioners. It has already been agreed that every foundation member of the college of less than 20 years' standing in practice, and without a higher degree, should accept 15 hours postgraduate instruction every year, or a week every two years.

Mentally Ill in Hospitals.—The Minister of Health has said that 43% of the hospital beds in England and Wales are occupied by persons suffering from mental ill-health. The proportion would probably be 50% if the patients included those in hospitals whose disease was as much of the mind as of the body. He said further that "the vast mental hospitals, some with more than 2,000 beds, are far away from our ordinary life and tend to be forgotten." The greatest problem is that of the aging population. We have ensured that people live longer, but we must do all we can to see that they are healthier and happier in the extra years given them.

Variations in Prescription of Drugs.—According to the Joint Pricing Committee for England, the area with the highest average cost per person for medicaments prescribed in 1952 was Chester. The cost there was \$4.35 per annum. The area with the lowest average cost was Huntingdonshire, where it was \$1.75. The area where most prescriptions per person were given was Wigan, with an average for the year of 8.17. At the other end of the scale was Huntingdonshire, with 3.28.

Doctors' Orchestra.—Dr. H. Ucko's appeal for music-loving members of the medical and dental professions in London to join him in forming an orchestra has been successful, and the orchestra had its first rehearsal recently. At present it consists of 21 violins, 3 violas, 10 cellos, 1 double bass, 2 flutes, 4 oboes, 6 clarinets, 1 bassoon, 2 horns, 1 trumpet, 1 trombone, and 1 tympani.

Research Clinic.—An Institute of Clinical Research and Experimental Medicine for the use of consultants of the Middlesex Hospital has been formally opened. It is the first in the country. Prof. A. Kekwick, director of the institute, said recently that already work is proceeding on cancer of the lung, the common cold, and the testing of drugs and anesthetics.

MEXICO

Wilms' Tumor.—According to studies made at the Children's Hospital, Mexico City, by Sariñana, Navarro, Salas, and Figueroa (to be published in *Boletín médico del hospital infantil*) of 54,375 patients who entered that institution between 1944 and 1951, 35 (0.06%) were found to have Wilms' tumor. Comparing the frequency of this tumor with that of all malignant tumors over a period of three years, it was found that one Wilms' tumor was encountered for eight malignant tumors of other types. Of the 35 cases studied, all presented an asymptomatic period of two to six months after discovery of the tumor and then more or less accentuated pallor, anorexia, and fever developed. The tumor was usually discovered by the mother of the patient and occasionally by routine medical examination.

Urinalysis revealed pus cells in 18 of the cases and red blood cells in only 3. In five the intravenous pyelograms were not diagnostic for Wilms' tumor. In three, after a retroperitoneal injection of air, it was impossible to see the kidney outline because adhesions prohibited the penetration of the air. The diagnosis was usually not difficult. Clinically, as well as radio-

logically, there were few doubtful cases. In one, neuroblastoma had to be ruled out. The elapsed time from the onset until hospitalization was five or six months. In five cases there was radiological evidence of pulmonary metastasis. All patients were treated surgically through the abdominal and transperitoneal route. In all cases the renal bed was irradiated the day after operation. Pulmonary metastases were treated in a similar manner. The operative mortality was 66%. Of the 12 patients who were alive at the time of writing, 5 had survived three and one-half years after operation; 3, two years; 3 more than one year; and one, less than one year. Most of the patients were less than 3 years of age, and one was 12 years old. The high mortality was due to the malignancy of the tumor and a failure to diagnose the condition early enough. Careful and systematic medical examination during the first three years of life will greatly aid in early diagnosis of this disease.

Damon Runyon Memorial Fund Grant.—This is the third year that the Damon Runyon Memorial Fund for Cancer Research, Inc., has given the Hospital de Enfermedades de la Nutrición in Mexico City a grant of \$5,000. This hospital and the cancer unit of the Hospital General in Mexico City have been working together under Dr. Francisco Gómez-Mont and Dr. Guillermo Montañón. Sixty patients have been treated with different steroids supplied by private laboratories. Doses of 500 mg. of progesterone were given intramuscularly every day to 20 patients until each patient had received 35 gm. Subjective symptoms improved and bleeding was reduced. Another 20 patients received 100 mg. of stilbesterol daily, with a total dosage of 8.485 gm. This also reduced bleeding. In the remaining 20 patients, who were given 500 mg. of testosterone propionate daily, bleeding was reduced, but tumoral necrosis increased. In none of the patients was there reduction in the size of the tumor or cytological or histopathological changes.

NETHERLANDS

Status of the Medical Profession in the Netherlands.—Sick funds have existed in the Netherlands for more than a century, and 50 years ago the Dutch Medical Association organized its own sick funds in which nearly 50% of all the insured in the country are enrolled. For the remuneration of the general practitioner, a capitation fee has been the usual system. Although the physicians have no objection to sick funds as such, the developments during and after World War II have led to a critical situation. Before the war all the sick funds were private institutions. The conditions under which the practitioners gave their services to the insured were based on contracts between the local professional groups and the local sick funds, without any intervention or supervision of government officials. These sick funds are responsible only for medical and pharmaceutical care in the broadest sense of the word.

The compensation of loss of wages by the employed, due to illness, is the subject of a sickness compensation act that is not administered by private organizations but by public or semi-public institutions. Such was the situation at the beginning of the war, but in 1941 the following drastic changes were brought about by the German occupation: 1. Sick fund insurance became compulsory for the employed and their families. 2. The maximum income for admission to the fund was no longer a matter of the local organizations, but became, at least for the compulsorily insured (70% of all the insured), fixed by the law in a uniform way for the whole country. 3. The sick funds lost their private character and came under state control. 4. The employers were obliged to pay half the premium of the compulsorily insured and thus became a potent factor in the control of the sick fund organizations. 5. The influence of the medical profession on these organizations was diminished in accordance with the growing influence of the new powers—the state and the employers. 6. The insured no longer formed a homogeneous group but were split up into voluntarily insured (30%) and compulsorily insured (70%) with different rights. 7. The total number of insured increased abruptly from 38% to 67% of the population as a whole. This growth was not so conspicuous in the urban districts (63% to 72%) as in the rural districts (16% to 49%).

In normal times there would have been opportunity for discussion by the medical profession and by the public, as well as in the Parliament, before such a law was accepted. During the war this was impossible, and, moreover, the physicians were too busy with the "medical resistance," which formed an outstanding part of the general resistance, to pay much attention to those important changes in their profession. They hoped and expected, however, that all those regulations, to which they strongly objected, would be reviewed after the liberation. The whole system, however, has been maintained, the only difference being that the "Führer-principle" was replaced by more democratic forms of organization. In the years after the war, the relations between the physicians and the sick funds became less cordial from year to year. One of the most difficult points was the determination of a maximum income that was compatible with membership in the sick funds. This limit was increased on several occasions, but the increases were based not on arguments of public medical care, but on economic, social, or political considerations. Because every increase of this limit diminishes the group of the persons forming the private practices, the medical profession in general did not concur in these measures. Furthermore petitions of the physicians for greater remuneration to compensate for the devaluation of the currency and increases in professional expenses were not acted on promptly. The specialists have not fared so badly, but the remuneration of the general practitioners is much too low.

At the end of 1953 after nearly a year of negotiations, an agreement between the general practitioners and the sick funds was reached that would result in a capitation fee of 7 florins each for the first 3,000 patients on a physician's panel and 5 florins for each additional patient; 3,000 patients is considered to be the optimum number for panel practice; a larger number is not encouraged. Approval for the new contract by the sick fund board was obtained with difficulty, and then the hope of its adoption was destroyed by the Minister of Social Affairs and Public Health. He judged the fee to be too high and postponed the execution of the regulations for three months. This intervention of the government is a challenge not only to the medical profession but also to the sick funds that hoped to save the small degree of autonomy left to them. The reaction of the medical profession was prompt. On Dec. 26 the general practitioners were summoned for a meeting. The meeting concluded that, because an agreement on a voluntary basis had been made impossible, the general practitioners will charge every insured patient a moderate private fee for a consultation. This new system of remuneration was to start Feb. 1, 1954.

PARIS

Experimental Tests on Tobacco Smoke.—In February, 1953, D. Vincent, G. Segonzac, and R. Lagrue reported the results of tests on tobacco smoke to the Society of Medicine, Surgery, and Pharmacy of Toulouse. The results of the inhalation of tobacco smoke on the bronchopulmonary tract in dogs who have been given chloral are the same as those observed following slow intravenous injection of small quantities of nicotine. Under the influence of a single cigarette, the blood pressure is suddenly doubled or tripled. The authors believe that this is due to adrenal stimulation. The blood pressure then gradually decreases. An initial polypnea is followed by a transient apnea. From 2 to 4 mg. of nicotine is absorbed during the smoking of one cigarette. The effects are less pronounced when denicotinized cigarettes are used. If a synthetic sympatholytic product is injected simultaneously, there is a fall in blood pressure instead of a rise. The authors believe that the sensation of release and tonic stimulation felt by smokers is due to adrenal stimulation, but this reaction, repeated in tobacco intoxication, might favor arterial atheroma and in diabetics an elevation of glycemia.

The Pathogenesis of Arteriosclerosis.—At a meeting of the French Society of Phlebology in June, 1953, A. Delaunay reviewed the theories of the pathogenesis of arteriosclerosis, namely, that it is due to (1) a disorder in lipid metabolism or (2) an exaggerated or abnormal hormonal activity. Among the hormones playing a role in this pathogenesis would be the de-

soxycorticosterone and desoxycorticosterone, epinephrine, thyroxine, and the pancreatic hormones. By injecting diethylstilbestrol into animals, vascular atheromas have been produced. Another theory, introduced by Moskowitz, is that the arterial lesions are caused by hypertension. Hueper believes that anoxia plays a leading role. R. Bourliere, who has long resided in the Far East, calls attention to the variable frequency of arteriosclerosis in people of different races and dietary habits. He found that in sedentary people with plenty of food arteriosclerosis was more prevalent than in rural populations with a limited food supply. On the other hand, Eskimos whose diet is very rich in fat rarely had atheromas. He therefore concluded that a diet rich in fats in hot or temperate countries and psychological stress predispose to arteriosclerosis. *Atheroma exists solely in the higher, warm-blooded vertebrates.*

Treatment of Lupus Erythematosus.—S. Sophroniadis has found an ingenious way to cure lupus erythematosus within a few days. He lets streptomycin penetrate into the affected tissues by iontophoresis. The skin is cleansed with double distilled water. An apparatus of at least 50 v. supplied with a milliamperemeter measuring intensities of 0.5 to 10 ma. and having lead electrodes is used. The active electrode is 2 to 8 cm. in diameter (being proportional to the lesion) and covered with pure cotton 1 cm. thick. This electrode is plunged into a fresh 0.05% solution of dihydrostreptomycin in double distilled water. The streptomycin solution leaves the positive pole. The ratio of the intensity of the current to the diameter of the active electrode must be 1:4. The number of treatments each of 5 minutes' duration is 6 to 10 for recent cases and 15 to 30 for chronic cases. During the treatment the author observed desquamation and hyperemia of the skin which disappeared a few days after the treatment was discontinued. This work was reported in the *Echos of Medicine* of Aug. 1, 1953.

New Products Inducing Hypocholesterolemia.—Cottet, Vignatou, Redel, and Calas-Belcours at a meeting of the Medical Society of Paris Hospitals in November, 1953, discussed a new drug that they call phenyl-ethyl-acetic acid. It is obtained by simplification of the molecule of biliary acids. Clinical studies were made on 135 patients to whom the drug has been given during a period of 2 to 12 weeks in daily doses of 2 to 3 gm. In 25 patients with a serum cholesterol of 251 to 410 mg. per 100 cc. there was a decrease in cholesterol following treatment in 23. In 51 patients with a serum cholesterol of 200 to 250 mg. per 100 cc. there was a decrease in 40. In 15 patients with a serum cholesterol of 150 to 199 mg. per 100 cc., there was a decrease in 8. The decrease in serum cholesterol appears to be in proportion to the initial elevation and to the duration of treatment. The initial level may be decreased 50% in seven or eight weeks. The drug is well tolerated and produces no albuminuria, erythema, or modification of azotemia. In 7 to 8% of the patients moderate gastralgia was observed.

Cardiac Auscultation.—A. Briskier has devised a method of graphically recording the heart sounds and simultaneously recording the sounds on tape. This enables the surgeon, during an operation, to appreciate the condition of the patient's heart and the obstetrician to follow fetal heart beats during birth. It also facilitates the teaching of cardiology. The microphone is so sensitive that the results registered are superior to those obtained by conventional auscultation. Certain heart murmurs that have not been distinguished by the stethoscope may be heard by this method. This has been reported in the *Archives of Heart and Vascular Diseases* of May, 1953.

Cardiac Protection in Surgery.—In June, 1953, J. M. Melon, J. Cahn, and Mlle. Dubrasquet reported a new technique of cardiac protection to the French Society of Analgesia and Anesthesia. This consists in the infiltration of the sinoauricular node with lidocaine (Lignocaine). This permits clamping for 17 minutes at a temperature of 84.2 F and prevents fibrillation of the heart. During the discussion, Huguenard stated that this method, interesting as it may be, does not protect the brain, but could allow, nevertheless, a profound artificial hibernation.

Doctor Roux's Centenary.—On Dec. 11, 1953, the centenary of Dr. Roux, the first disciple of Pasteur, was celebrated in the Sorbonne. Dr. Roux discovered diphtheria toxin and initiated treatment with antitoxin.

SPAIN

Congress of Leprology.—The Sixth International Congress of Leprology was recently held in Madrid under the chairmanship of Dr. J. A. Palanca and Dr. J. Gay Prieto and with the collaboration of Dr. M. Alvarez Cascos. The secretary of the congress was Dr. Contreras, the Director of the Leprologic Center of Trillo. The congress was organized by the International Association Against Leprosy. It met under the auspices of the government of Spain and the International Council on Organization of Medical Sciences, which corresponds to the World Health Organization. Its main function was to prepare regulations to be used throughout the world. Resolutions were drawn up by committees on classification, therapeutics, immunology, epidemiology, prevention, and social aid. All the resolutions were unanimously approved by the congress. Over 600 persons attended. According to the classification approved, leprosy may be lepromatous, tuberculoid, or indeterminate. Lepromatous leprosy is contagious, and *Mycobacterium leprae* is found abundantly in the lesions of this form. The resulting immunity is scanty, and the presence of Virchow's cells in the microscopic sections is typical of this form. The lesions of tuberculoid leprosy are granulomatous and contain few if any bacilli. As a rule it is only slightly contagious, if it is contagious at all. The immunity it produces, manifested by a positive Mitsuda's reaction, is good. The macular lesions seen early in the course of the disease are characteristic of the indeterminate form. This classification makes possible the recognition of those patients who need to be isolated and hospitalized. Patients with tuberculoid leprosy can continue to live in an active social environment without endangering the persons with whom they come in contact.

Sulfonamides are still the treatment of choice. Although treatment with these agents can result in total regression of leprosy and the cure of a large number of patients, the patients should be observed periodically for signs of recurrence. A continuation of the treatment after remission of the clinical symptoms reduces the incidence of recurrences. The value of thiosemicarbazone and streptomycin was pointed out. The Committee on Prevention recommended placing the responsibility of the crusade against leprosy on the dispensaries. The new drugs rapidly control the early lesions of leprosy and prevent the progression of early into advanced phases of the disease. This work as carried out in dispensaries should include periodic examinations of all normal persons who live in endemic zones in order to detect new cases early. The vaccination of normal persons who live in endemic zones with BCG increases resistance to leprosy. It causes the lepromin reaction to become positive. Vaccinated persons either do not acquire leprosy or, if they do, the disease is of the tuberculoid form. The use of BCG is free of any danger, even for persons who are sensitive to tuberculin. Some authors believe that a positive lepromin reaction in persons vaccinated with BCG is only the early development of a reaction that would have appeared later if the patient had not been vaccinated. The committee recommended standards for the organization of preventoria for children who had lived in endemic zones.

SWITZERLAND

Association of Cortisone and Phenylbutazone.—Because the beneficial effect of cortisone and corticotropin is limited to the duration of the treatment, many attempts have been made to prolong the effect by the concurrent use of other substances. Gsell and von Rechenberg (*Schweiz. med. Wchschr.* 83:1089-1092, 1953) studied the association of cortisone and phenylbutazone. In a preliminary period of two to four weeks, phenylbutazone was given parenterally to make the acute manifestations of chronic progressive polyarthritis disappear. The second therapeutic stage consisted in giving a total of about 1.5 gm. of cortisone in 12 to 20 days. In the third stage, phenylbutazone was again given. The results were satisfactory in 20 patients

treated in this way. The phenylbutazone tends to maintain the beneficial results obtained with cortisone and to prevent relapse. If these drugs are given concurrently on the other hand, the authors warn that there is danger of water retention, gastric ulcer, and granulocytopenia.

Staphylococcal Diarrhea Following Treatment with Antibiotics.—During a meeting of the Medical Society of Geneva in December, Bickel and Rentchnick reported a case of staphylococcal enterocolitis aggravated by chlortetracycline. The patient was a 15-year-old girl who, after having undergone a successful appendectomy, was given penicillin, streptomycin, and chlortetracycline in the first five postoperative days. Severe diarrhea soon caused an alarming dehydration, with sudden elevation of the body temperature up to 105 F. Stool cultures showed a strain of coagulase-positive *Micrococcus pyogenes* var. *aureus* (*Staphylococcus aureus*), which was resistant to penicillin. The patient was given erythromycin, and in 24 hours her temperature was normal, the diarrhea was checked. Four days later, there were no more staphylococci in the feces.

The 70th Birthday of Professor Frey.—The University of Berne celebrated the 70th birthday of Professor Frey, who is head of the medical clinic and has published two important books on the heart, the vessels, and renal diseases. In 1913 he introduced the test with epinephrine in the diagnosis of diseases of the spleen; in 1918 he introduced the use of quinidine in the treatment of auricular fibrillation; and in 1925 he described the sinking of the S-T segment of the electrocardiogram in patients with myocardial lesions. He is also the editor of the "Handbuch der Inneren Medizin."

The Vogt Prize.—The Swiss Society of Ophthalmology awarded the Vogt Prize to Professor Bamatter of Geneva, who in June, 1946, reported the first two cases of human toxoplasmosis. This disease, due to a protozoan transmitted to man by animals, causes typical ocular manifestations, which Bamatter reported in detail (*Ergebn. inn. Med. u. Kinderh.* 3:652-828, 1952). Of 74 patients known to have had toxoplasmosis, 50 had hydrocephalus, 10 paralysis, 39 cerebral calcifications, 5 strabismus, 9 nystagmus, 3 unilateral chorioretinitis, and 7 affections of the anterior segment of the eyeball.

New Hormone.—In a recent number of *Schweizerische medizinische Wochenschrift* (83:1088-1089, 1953), Reichstein and co-workers show that the new hormone electrocortine differs qualitatively and quantitatively from desoxycorticosterone. Quantitatively, it produces about 25 times as great a retention of sodium and about 5 times as great an increase of the elimination of potassium.

New Polyclinics of Geneva.—A sumptuous new five-story building for all the polyclinical services of Geneva has replaced the old. It includes a pharmacy, a transfusion center, a diagnostic laboratory, and otorhinolaryngology, surgery, medicine, and public assistance departments. The staff includes 20 physicians, 31 nurses, 11 social nurses, and 2 midwives.

Two International Congresses in Switzerland.—The International Congress of Gynecology and Obstetrics will be held from July 26 to 31 and the International Congress for the Study of the Bronchi will take place on June 5 and 6 in Geneva.

TURKEY

Pulmonary Abscesses and Penicillin Aerosol Therapy.—In *Anadolu Klinigi*, vol. 19, no. 4, Drs. Ihsan Aksan and Feyyaz Kasimoglu reported on 125 patients with pulmonary abscesses out of 21,416 admissions between 1943 and 1953. In recent years, there has been a marked decrease in the incidence of this condition. Of the 125 patients, 52 were treated with various drugs. Of these, 34 improved; 5 had no change; 5 died; and 7 were transferred to the surgical department. Of the 20 patients given emetine, 17 improved, one recovered, and 2 were advised to have an operation. Of the 12 patients given neoarsphenamine, 9 improved, and 3 had no improvement. Of five who were given acriflavine (Trypaflavin), three improved and in two an operation was indicated. The two given alcohol therapy improved.

Of the 34 patients given penicillin aerosol therapy, 17 were improved and 17 were cured. Experience with these 125 patients indicates that good results were obtained when the therapy of pulmonary abscesses was supplemented with antibiotics given parenterally or by inhalations and, when this failed, by tracheal insufflation. When thoracic puncture of the abscess, supplemented with antibiotic injections into the cavity, failed to have beneficial effects, an operation was recommended.

Tumor-Like Ascariasis.—Because of the primitive sanitation of rural Anatolia chronic ascariasis is common among the inhabitants. In *Dirim* (vol. 27, no. 8) Dr. Fatma Altug described a case of ascariasis in a 3-year-old boy that resembled an abdominal tumor. Until one year prior to admission he had been in good health; then pain and swelling in the abdomen developed. He became pale, listless, and irritated, and, although he had a good appetite, he did not gain weight. He had intense itching of the nose and profuse salivation at night, and once he passed an ascaris. Two months before admission a tumor-like, hard swelling developed in his abdomen. When this was massaged, it softened and the child felt relief. Because of diarrhea and vomiting the boy was brought to the hospital, where he was found to be emaciated and anemic. He had sunken eyes and a greatly distended abdomen. Parallel with the right rib edge, a smooth-edged movable tumor of moderate hardness measuring 5 by 10 cm. was palpable. The feces contained numerous ascaris ova. The patient was given a light supper, and on the next morning without breakfast he took a vermifuge and two hours later 25 cc. of castor oil. After three hours he passed 42 worms in a tight mass and on the next day 50 more, also in a tight mass. After this no trace of the tumor remained. The patient's health improved rapidly. Search for intestinal parasites is routine in outpatient clinics. Tight masses of ascarides are often encountered at autopsy in bodies of inhabitants of rural communities.

Ewing Tumor.—In *Dirim* (vol. 20, no. 10), Prof. Recai Ergüder and M. Naci Ayral described a case of Ewing's sarcoma, which is rare in Turkey. In the second surgical clinic of the Gülhane Military Medical Academy from 1942 to 1952, of the 22 patients who had sarcoma, only one had Ewing's sarcoma. According to world medical literature the percentage is 10 to 20. The patient was a 12-year-old boy. Pain in the left leg and knee began two months prior to admission to the hospital, and he had been treated for rheumatism without benefit. The pain and the swelling in the center of the left femur increased, and the patient rapidly lost weight. A biopsy specimen revealed a Ewing sarcoma. Amputation was advised but refused. The swelling rapidly increased, and the patient came to the Gülhane Hospital in Ankara. His left leg was edematous, and he had small, hard inguinal and axillary lymph nodes. Amputation was again refused. Radiotherapy was given by Prof. Mehmet Ali Taner, and within a month the tumor lost its hardness, the pain had decreased, and the axillary lymph nodes had disappeared. The patient's general condition improved for another month; then a hard painful swelling was noted in the testes; the liver and spleen descended below the costal margin; ascites developed; there was radiodermatitis above the femur; and the therapy was discontinued.

Five days later the patient complained of dyspnea and a cough. Sibilant and sonorous rales were heard in both lungs; there was pain under the left breast; and the patient died three days later of pulmonary edema and heart failure. Prof. Sureyya Taney of the Ankara Medical Faculty Institute of Pathology and Dr. Muzaffer Güldogan performed the autopsy. The tumor extended from the great trochanter to the condyle of the femur. It was gray, measured 14 by 18 by 38 cm., and weighed 4,500 gm. Sections revealed yellow necrotic areas chiefly at the periosteum. In the left lobe of the thyroid there was a tumor the size of a chestnut. Lymph nodes of the neck showed evidence of hemorrhage. There was a metastatic tumor at the hilum of the lungs. Hemorrhagic effusions were found in both pleural cavities. Tumors were also found under the left lobe of the liver, around the umbilical vein, the portal vein, the bile duct, and in the diaphragm, the omentum, and the cortex of the kidneys. The specimen of the tumor showed diffuse homogenous, polychromatic, hyperchromatic, pyknotic, atypical mitotic cell groups of various sizes.

CORRESPONDENCE

TRIBUTES TO THE PHYSICIAN

To the Editor:—The medical profession often comes under so much criticism that each physician is apt sometimes to become discouraged and to find his morale sinking to a low point. The recollection of some of the great tributes to the medical man may then be of real value in sustaining the sense of his own worth and restoring his satisfaction with his life work. For this reason, I have assembled here several of the most notable tributes to the physician for convenient reference.

So many physicians served in World War II and the Korean conflict that it is fitting that the first eulogy is to the military surgeon and comes from one of the most celebrated men of our generation, Sir Winston Churchill who recently received the Nobel Prize in literature. The quotation is from one of his earliest books "The River War." "The profession of medicine and surgery must always rank as the most noble that man can adopt. The spectacle of a doctor in action among soldiers, in equal danger and with equal courage, saving life where all others are taking it, allaying pain where all others are causing it, is one which must always seem glorious, whether to God or man. It is impossible to imagine any situation from which a human being might better leave this world, and embark on the hazards of the Unknown."

At a time when socialized medicine is being urged by many groups, this opinion of the English statesman William E. Gladstone is of interest. "Another point on which I congratulate the profession is its independence. It does not rely on endowment, but on its own exertions directed to meeting human wants. There is no great profession which has so little to say to the public purse, and which so moderately and modestly dips its hand into that purse. It is not only in the interest of the public, but of the profession itself, that is eminently self-supporting; and, rely upon it, that the principle of self-support does much to maintain its honour and independence, and to enable it to pursue its stately march in the times that have come and in the times that are coming, to form its own convictions, to act upon its own principles without fear or favour, for the general benefit of mankind." This is from an address delivered at Guy's Hospital, London, in 1890. As a declaration against state medicine, it is just as appropriate in 1954 as it was 64 years ago.

Two great novelists have eulogized the physician. The best known tribute is that of Robert Louis Stevenson. "There are men and classes of men who stand above the common herd, the soldier, the sailor, the shepherd not infrequently; the artist rarely; the physician almost as a rule. He is the flower of our civilization and, when this stage of man is done and only to be marveled at in history, he will be thought to have shared as little as any in the defects of the period and most nobly exhibited the virtues of the race. Generosity he has, such as is possible to those that practice an art, never to those who drive a trade. Discretion, tested by a hundred secrets, tact tried in a thousand embarrassments, and what is more important, Herculean cheerfulness and courage." Dickens, in "Bleak House," expressed his golden opinion of the medical man through the words of the heroine of that novel. "I never walk out with my husband, but I hear the people bless him. I never go into a house of any degree, but I hear his praises, or see them in grateful eyes. I never lie down at night, but I know that in the course of that day he has alleviated pain, and soothed some fellow creature in the time of need. I know that from the beds of those who were past recovery, thanks have often, often gone up, in the last hour, for his patient ministrations. Is not this to be rich? The people even praise *Me* as the doctor's wife."

Virtually no phase of life goes unnoticed in the Bible, and sickness and the physician are not forgotten. The author of Ecclesiastes expresses the dependence of society on medicine: "Then give place to the physician, for the Lord hath created him: let him not go from thee, for thou hast need of him." The prophet Jeremiah also tells of this need with the question "Is

there no balm in Gilead? Is there no physician there?" Homer declared that "The physician is worth many other men" and that "The wise physician skilled our wounds to heal is more than armies to the public weal." This is another reference to the value of military medicine, apparent even in Homeric times.

In Ian MacLaren's "A Doctor of the Old School" a book length tribute is paid to the country physician. This work, written more than 50 years ago, has become a classic and would make an excellent moving picture. In these days of communism, anti-imperialism, and numerous other isms, Kipling has gone out of style. He was and is, however, one of the giants of literature. Nearly 50 years ago in speaking to a group of medical students he said words of praise of the physician's calling that deserve to be recalled to mind. "It seems to be required of you that you must save others. It is nowhere laid down that you need save yourselves. That is to say you belong to the privileged classes. May I remind you of some of your privileges? You and kings are about the only people whose explanation the police will accept if you exceed the legal limit in your car. On presentation of your visiting card you can pass through the most turbulent crowd unmolested; even with applause. If you fly a yellow flag over a centre of population you can turn it into a desert. If you choose to fly a Red Cross flag over a desert you can turn it into a centre of population toward which, as I have seen, men will crawl on hands and knees. You can forbid any ship to enter any port in the world. If you think it necessary to the success of any operation in which you are interested, you can stop a 20,000 ton liner with her mails in mid-ocean till that operation is completed. . . . At a time when few things are called by their right names, when it is against the spirit of the times even to hint that an act may entail consequences, you are going to join a profession in which you will be paid for telling men the truth, and every departure you may make from the truth you will make as a concession to man's bodily weakness, and not his mental weakness."

Perhaps the finest tribute to the medical profession is the ethical concept contained in the Hippocratic writings. This may be summed up in a single sentence: "That which is for the greatest benefit to the patient is the first consideration of the physician." This should be printed in letters of gold and placed on the wall of every physician's waiting room and office. This motto and its observance by our profession would promote the best relations between physician, patient, and public.

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BOOKS FOR CHRISTIAN MEDICAL COLLEGE

To the Editor:—A short time ago I visited the Christian Medical College at Ludihana, Punjab, India, under the direction of Dr. Fred Scovell. In talking to Dr. Scovell, I discovered that this medical college is in great need of current medical books and pamphlets to carry on effectively its training of students in that area. Current books and pamphlets are not too available at this college in view of the fact that it is on a limited financial program and in a remote area of the world.

I know that many physicians would be glad to share their books with an institution of this kind. They could send the books to Dr. Fred Scovell, Christian Medical College, Ludihana, Punjab, India. If the physicians do not care to undertake the expense of transportation of the books, I would be glad to have them send them to me and I will in turn see that they are forwarded to the college.

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OTITIS EXTERNA

To the Editor:—I was interested in the article entitled "Otitis Externa: The Facts of the Matter" by J. W. McLaurin (*J. A. M. A.* 154:207 [Jan. 16] 1954). I have never seen primary mycotic eczematous otitis externa or primary bacterial eczematous otitis externa. In my experience, eczematous otitis externa has been caused by (1) psoriasis vulgaris, (2) otitis media with perforation and otorrhea, (3) seborrheic dermatitis, (4) atopic dermatitis, (5) neurodermatitis, (6) contact dermatitis, (7) dermatitis medicamentosa from drugs injected, ingested, or applied topically, or (8) a combination of two or more of these. Obviously, bacterial infection may be superimposed on all of these conditions. Of all the causes of chronic eczematous otitis externa that I have listed, I have found that psoriasis vulgaris is not only the one most frequently met, but the one least often diagnosed. As psoriasis affecting other cutaneous parts of the body, eczematous psoriatic otitis externa is chronic and unpredictable in its course and response to treatment.

Since the otolaryngologists, general practitioners, and internists usually see and treat external otitis initially, I advise them to examine the patient's skin and nails for evidence of psoriasis elsewhere and to question him about the presence of psoriasis in other members of the family. Unhappily, eczematous external otitis may be the first and only manifestation of psoriasis and may be present for months and years before psoriasis appears on other parts of the body.

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To the Editor:—In the Jan. 16 issue of *THE JOURNAL*, Dr. McLaurin has written a fine article about the principles of treatment of otitis externa. From the dermatologist's point of view, however, he has omitted one of the principles that we consider most important. That is that the commonest cause of otitis externa is seborrhea, and, unless one looks for it in the scalp and treats that area too, one will make little progress in treating the ear. Diffuse scaling of the scalp, with or without inflammation, is an indication for treatment of the scalp as well as the ear with any of the standard preparations for this cause. Treatment of the ear with neglect of the scalp is almost certain to give a poor or only temporary response.

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THE PARIETAL LOBE

To the Editor:—Regarding the monograph "The Parietal Lobe" by Macdonald Critchley (reviewed in *THE JOURNAL*, Jan. 9, 1954), it should be pointed out that approval or disapproval of the work will depend on the point of view, of which there are at least two. Although Critchley strongly supports the thesis that each symptom described represents a loss of some mental element, there are others who believe that the various symptoms are functional in nature and that they indicate, at most, a general emotional instability. Bay (*Brain* 76:515-550 [Dec.] 1953) after a long and elaborate study concludes that the conception of "agnosia" is invalid; and it should be added that agnosia includes most of the symptoms described in Critchley's monograph. Weinstein and Kahn (*A. M. A. Arch. Neurol. & Psychiat.* 69:355-367 [March] 1953) find that personality factors determine the "denial of illness" in hemiplegia. As the author mentions, Jung examined one celebrated, much-studied patient with agnosia and stated that a psychiatrist would reach no such conclusions as the others had done. My own article (*J. Nerv. & Ment. Dis.* 91:190-209 [Feb.] 1940) encompassed the whole range of symptoms associated with this general area of the cortex, and I stated that they were best understood as basically functional manifestations.

It is true that this part of the brain produces, either spontaneously or on examination (perhaps by suggestion), a curious lot of symptoms and so at least is associated with an unusual degree of instability. It is impossible in one short letter to go into all the arguments, as I tried to do in my monograph "Cerebral Localization: Outline of a Revision." But, as Critchley admits,

there occur "negative cases," that is to say, cases in which similar lesions fail to yield anticipated signs. The occurrence of negative and positive findings, respectively, could mean that the real influence is exerted on centers at a distance from the lesion, through the medium of surrounding tissue and vascular reactions, which can be demonstrated to occur. These reactions may sometimes extend as far as the underlying thalamus, the supposed seat of certain emotional disturbances. Hence, there is the experience of contradictory negative and positive findings and of special instability associated with this part of the cortex. It appears that from one point of view, the pictures described and the inferences drawn in the monograph cited are questionable.

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EVALUATION OF TOXICITY OF CHEMICALS

To the Editor:—I refer to the article "Perspective Versus Caprice in Evaluating Toxicity of Chemicals in Man" by Dr. M. H. Seevers in the Dec. 12, 1953, issue of *THE JOURNAL*. It makes a highly valuable contribution in the clear and logical statement of five principles on which the evaluation of toxicity in human beings must be based. This is a splendid guide in considering the use of chemicals in foods. Dr. Seevers' distinguished work in pharmacology has been known for many years. It is regrettable that the over-all value of the article is impaired by a number of erroneous assertions and implications in the discussion preceding the statement of principles. Most glaring of these is the assertion that, "For approximately 50 years, the food division of the Food and Drug Administration has adhered to a basic administrative policy that no chemical shall be added to foods." There is no such administrative policy; there never has been. This is clear from even a casual reading of the food standards, which recognize the use of many chemicals, and other relevant pronouncements under both the laws of 1906 and 1938.

As evidence that the Food and Drug Administration has adhered to this alleged policy, Dr. Seevers offers the following quotation from an extemporaneous statement by former Commissioner P. B. Dunbar before the House Select Committee to Investigate the Use of Chemicals in Foods: "I feel that no chemical or no new chemical that is subject to any question as to safety should be employed until its possible injurious effect, both on acute and over a long-time chronic basis, has been shown to be nonexistent. In other words, any chemical that is proposed for use ought to be approved in advance of distribution in the food product to be utterly and completely without the possibility of human injury." Page 36 of the published report of hearings before the committee shows that Dr. Dunbar used the word "proved" where Dr. Seevers uses "approved" in the last sentence of the quotation. Dr. Seevers omitted the highly significant sentence that immediately follows and that reveals the meaning Dr. Dunbar was trying to convey: "What I think we need is an amendment which we might call the new chemical section, which will make the proponent of a new chemical, the addition of a new chemical, present the same type of convincing proof of safety that is now required in the case of new drugs before interstate commerce is undertaken."

Elsewhere in his article Dr. Seevers said: "American physicians are indeed fortunate in being able to inform their patients that drugs purchased on prescription or for self-medication are almost certain to be of proper identity, purity, quality, and quantity. This situation is virtually guaranteed by the wise provisions of the Food, Drug, and Cosmetic Act of 1938, especially the new drug section, which requires approval in advance of distribution. In the main, fair perspective has been maintained in administering the act as it relates to drugs. . . ." It seems, therefore, that Dr. Seevers approves the very procedure that Dr. Dunbar was advocating before the House Select Committee. As you know, the new drug section requires testing only by "methods reasonably applicable to show whether or not such drug is safe for use. . . ." That perfection is not contemplated by the law is further evident from the provision that a new drug admitted to the market on the basis

of such tests may subsequently be banned when "clinical experience, tests by new methods, or tests by methods not deemed reasonably applicable . . . (when the drug was admitted to the market) show that such drug is unsafe. . . ." The applicability of these provisions to new chemicals in food, within the framework of the five principles Dr. Seevers has set forth, is clearly apparent. Had methods employed by science in its search for truth been followed by Dr. Seevers, he would have found many published expressions by Dr. Dunbar and members of his staff that show adherence to the philosophy of the new drug section even before it was enacted in 1938.

After having postulated a nonexistent and indefensible policy for the Food and Drug Administration, Dr. Seevers accuses the organization of "a studied attempt to confuse and mislead the public," of establishing "standards that are impossible to attain regardless of conditions of use," and of using "incompetent witnesses or pseudoscientists to bolster up administrative decisions and influence legislation." He cites as an example of this type of action the decision banning the use of bread softeners, which he says "cannot be considered to represent a biological hazard under present conditions of use." Dr. Seevers' view on this point is not shared by the Food Protection Committee of the National Research Council. This committee, which is composed of distinguished scientists, studied the entire record in this case and rendered a report supporting the government's action. We in the Food and Drug Administration must leave the settlement of such issues to the consensus of the nation's scientific experts who are qualified by training and experience in the particular field involved in each case. Dr. Seevers' assertions that the decision on bread softeners was to influence legislation and that the decision on the use of nitrogen trichloride in flour "was designed primarily, if not exclusively, to influence legislation" are utterly without foundation, as are many of his other statements and implications on which I will not comment specifically at this time.

In his article Dr. Seevers invades the field of law enforcement, public administration, and legislation. In going outside his own scientific specialty, it is unfortunate that he did not carry the faculties of thoroughness and objectivity in search for truth that have characterized the contributions he has made in his own field. These erroneous representations do not lend perspective to consideration of the important health problem involved in the growing use in food of chemicals that have not been adequately tested to evaluate their hazard and do not contribute to solution of those problems.

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To the Editor:—An article by Dr. Maurice H. Seevers in *THE JOURNAL*, Dec. 12, 1953, bears the title "Perspective Versus Caprice in Evaluating Toxicity of Chemicals in Man." It is concerned largely with some questions relating to the toxicity of chemical additives to foods. It is unfortunate that in the development of his theme, which seems to be the formulation of certain so-called basic principles for the evaluation of the toxicity of chemicals, Dr. Seevers has presented an inadequate and misleading picture of the work of the Food and Drug Administration to protect the public health under the existing laws that that agency administers and of the work of the Delaney Committee of the 81st and the 82nd Congress to investigate the need for additional legislation relating to food additives.

It is not my purpose to do more than mention a few of the facts that should indicate that a sincere and considered effort has been and is being made to incorporate a new food additive section in the federal Food, Drug and Cosmetic Act. At the present time, regulatory control over the safety of new chemicals, or of old chemicals put to new uses, applies only to drugs and not to foods or cosmetics. The need for revision of the federal laws to correct these deficiencies has been pointed out repeatedly by persons who can hardly be characterized as crackpots, self-styled scientists, or even well-meaning but misinformed reformers. In 1949 the Committee on Chemicals

Introduced in Foods, of the American Public Health Association's food and nutrition section, was established. This committee now consists of the following persons, each of whom has served on the committee since its creation: William J. Darby Jr., M.D.; Smith Freeman, M.D.; Robert W. Pilcher, Ph.D.; Bernard E. Proctor, Ph.D.; Harold R. Sandstead, M.D.; Henry T. Scott, Ph.D.; and Franklin C. Bing, Ph.D., chairman. Several reports of this committee have been published. In its very first report, this committee called attention to the growing use of chemicals in food production and processing and to the need for orderly, scientific consideration of such uses. The committee recommended the enactment of legislation to require approval, prior to use, of newly proposed additives to foods. This recommendation, in the form of a resolution, was adopted by the governing council of the American Public Health Association in 1949.

The Delaney Committee of the 81st Congress was created in 1950 for the purpose of investigating the use of chemicals in food products. Its membership consisted of congressmen Thomas G. Abernethy, E. H. Hedrick, M.D., Paul C. Jones, Frank B. Keefe, A. L. Miller, M.D., Gordon L. McDonough, and James J. Delaney, chairman. The scope of the committee's work was expanded by the 82nd Congress to include an investigation of chemicals in cosmetics as well as in foods. Its membership remained the same, except for the appointment of Congressman Walt Horan in place of the late Congressman Frank B. Keefe. The chief counsel for the committee was Vincent A. Kleinfeld. It was my privilege to serve as consultant and member of the staff of the Delaney Committee throughout most of the period of its existence. This committee conducted hearings in Washington, D. C., Chicago, Spokane and Seattle, Wash., San Francisco, Los Angeles, and New York. Members of the committee visited laboratories of food processing companies and in other ways made a serious effort to ascertain what the problems were and what industry was doing to control them. There were over 200 witnesses who appeared before the committee, who presented statements under oath, and who were questioned by counsel and by members of the committee. Statements were submitted by a few persons who did not appear in person. There were, in addition, many letters, documents, and other pertinent items that were studied. The records of the hearings alone cover several thousand printed pages.

The Delaney Committee's reports and recommendations were based on a study and an evaluation of all of the available evidence. The qualifications of the persons who presented testimony were, of course, taken into consideration in evaluating the weight of the evidence that they introduced. In brief, these reports to Congress recommended, among other things, that legislation be enacted that would require the presentation of proof of safety under the condition of use of additives to cosmetics and to foods before these additives would be permitted to be put in articles in interstate commerce. All of the committee members signed the report on cosmetics; five of the seven members signed the report on food additives. Before and since the presentation of its final reports to the 82nd Congress in 1952, executives of food and chemical companies likely to be affected by the kind of legislation recommended in the majority report on foods of the Delaney Committee have gone on record as being in favor of the enactment of suitable legislation. Several associations of important food processing industries have adopted statements in support of the control of chemical additives to foods by suitable amendments of the federal Food, Drug and Cosmetic Act.

There are many persons who disagree with the suggestion of Dr. Seevers that a committee outside the Food and Drug Administration be appointed to assure the public of "valid technical as well as moral justification" for any decisions that might be made. In my opinion, authority to administer the broadened law, which is being given consideration, can well be assigned to the Food and Drug Administration without any reviewing body except the courts, but with sufficient financial provision to permit adequate enforcement in the public interest.

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MEDICAL MOTION PICTURES

MOTION PICTURE REVIEW

The Management and Mismanagement of Breech Presentation: 16 mm., color, sound, showing time 18 minutes. Prepared by A. C. Mietus, M.D., Department of Obstetrics and Gynecology, University of California School of Medicine. Produced in 1953 by Riviera Productions for Boyle and Company Pharmaceuticals, Los Angeles. Procurable on loan or purchase from A. C. Mietus, M.D., 1245 Glendon Ave., Los Angeles 24.

This film opens with remarks emphasizing the hazards inherent in breech presentation. The technique of prophylactic external version is demonstrated and decomposition of the breech is discussed. An assisted breech delivery is executed on a manikin, emphasizing the fundamentals and niceties of technique. The use of forceps on the aftercoming head is illustrated. Then, on the manikin, the mismanagement of a breech delivery is shown. Here the commoner errors in technique are shown. Finally, an actual breech delivery of a human subject, reemphasizing correct methods, is shown. The film closes with a brief discussion of the indications for cesarean section and a plea for obstetric conservatism. It is to be regretted that the subject of anesthesia is not more completely discussed. The necessity of assistance in breech delivery goes unmentioned. Slight pressure over the symphysis is also disregarded in the delivery of the aftercoming head. As it now stands, the film is incomplete; however, it will be of interest to general practitioners, residents, interns, and medical students.

Congenital Anomalies of the Ear, Genesis and Correction: 16 mm., color, silent, showing time 37 minutes. Prepared by George E. Shambaugh, Jr., M.D., and Eugene L. Derlacki, M.D. Produced in 1953 by Mervin W. La Rue, Inc., Chicago. Procurable on loan from Medical Audio Visual Education Department, Northwestern University, 303 E. Chicago Ave., Chicago 11, or on purchase from George E. Shambaugh, Jr., M.D., 55 E. Washington St., Chicago 2.

The stated purpose of this film is to present the authors' views on why more than one surgical technique must be considered in the correction of congenital anomalies of the external and middle ear. The findings vary in each case according to the stage of arrest in the embryological development of the external and middle ear. The embryological development of the external auditory canal, eustachian tube, the middle ear, and the conduction apparatus is illustrated by a series of drawings in color. Several clinical cases are then described that present different types of congenital defects and malformations of the external ear and conduction apparatus. These defects are then related to the period in the growth of the embryo at which the arrest or deviation from the normal took place. A detailed description of the embryology is not attempted and would scarcely be practical in a film of this length. The film is to be considered as a review of certain essential features of the embryology rather than as a detailed account. It therefore has greater value to the aural surgeon in relating the congenital defect to a certain stage in the development of the embryo than to the student in embryology. To the surgeon, the film demonstrates the method used by the authors for dealing with certain defects of the conduction apparatus and the external auditory meatus and results that they have obtained. The photography is excellent. The film should be of definite value to the otologist and the aural surgeon.

Viral Hepatitis: (FG 8-6): 16 mm., black and white, sound, showing time 20 minutes. Produced in 1953 by the Department of the Army. Procurable on loan from the surgeon of the army area in which the request originates.

This motion picture attempts to demonstrate, mainly by animated drawings, the basic facts of viral hepatitis. After a short reference to the military significance of this disease, the epidemiology, clinical symptomatology, physical and laboratory findings, treatment, and pathology are discussed. The differential diagnosis of hepatitis with and without jaundice is schematically presented. Here the picture is somewhat oversimplified, and not everyone will agree with some of the statements made. The prognosis is discussed with valuable emphasis upon the danger of chronic hepatitis, which is said to be avoidable with proper treatment, bed rest being most important.

The statement that 1% of patients die during the acute stage and 2% suffer from chronic hepatitis one year after the onset of the disease is surely correct for patients in the armed forces but may not necessarily apply to civilians. The animation is clear and simple, and the motion picture is very well organized. It can be recommended for presentation to hospital staffs, especially to stress the importance of chronic hepatitis.

BUSINESS PRACTICE

The following material is based on a public relations manual issued by the Public Relations Department of the American Medical Association.—Ed.

MEDICAL ASSISTANTS

If a doctor employs a combination nurse, secretary, and receptionist who presides over the waiting room, assists with patients, and does the clerical work, she is a key person in determining what patients think of a physician and his office. The good will of the patients is in her hands. Some physicians succeed with the help of good assistants, and others succeed in spite of their office personnel. Thoughtlessness or carelessness on the part of an assistant can spell doom for a doctor's public relations. A neat, attractive assistant is "good medicine" for any patient. As the physician's good-will ambassador she should have a pleasing personality that combines friendliness, courtesy, graciousness, and sympathy. A girl who dislikes people or becomes impatient with them should not work in a doctor's office. A sad-faced girl, one who is bored or wears a perpetual sneer, or a dragon who strikes terror into the hearts of patients is no asset to a physician. His assistant should be cheerful, tactful, and efficient, prepared to meet any emergency with cool-headed composure. In order to find such a paragon, one physician suggests using the systematic techniques developed by personnel experts—job evaluation, careful screening, and testing of applicants—rather than the hit-or-miss approach. Although ready-made kits that provide interview guides and necessary forms are available from the Personnel Institute¹ or the Psychological Corporation,² similar materials can be designed to fit individual needs.

Before considering any applicants for a job as assistant, a physician should decide exactly what tasks the job entails and what qualifications in terms of age, marital status, and education the applicant should have. He may then enlist the aid of his colleagues or friends, schools training the type of assistant he wants, and employment agencies. He may also advertise in newspapers or professional journals for applicants. In interviewing an applicant he should particularly notice her voice, poise, intelligence, education, and ambition. He should have applicants fill out a personal history form and hold a final interview with the best applicants. He should get an opinion, by phone if possible, from a past employer.

An efficient assistant can save time and money for a physician, but she must be thoroughly trained. Her duties should be clearly and specifically outlined, and she should not be expected to learn everything the first day. The importance of attention to detail should be impressed on her, and she should be warned that mistakes in a doctor's office can be tragic. The importance of maintaining patients' office confidences should also be stressed, and an agreement on just what procedures are to be followed in specific situations should be worked out in advance. Many a doctor's assistant is reduced to tears when her employer flails her verbally in front of a patient for a slip-up. This should never be done. She should be encouraged to tell her grievances to her employer and to make suggestions. Good assistants deserve good wages. It is foolish to hire a girl merely because she will work for a pittance. Most girls do not mind working overtime occasionally, but this should be rewarded with a little time off now and then or with a substantial bonus. A loyal, personable, and well-trained assistant can be a doctor's greatest public relations asset.

1. Personnel Institute, 201 E. 57 St., New York.

2. Psychological Corporation, 522 Fifth Ave., New York.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Governmental Hospitals: Right of Staff Member to Practice Surgery.—This was a suit for an injunction to restrain the director and members of the senior attending staff of the Irvington General Hospital from denying the plaintiff the right to perform major surgery on his patients in the hospital. The suit was heard in the superior court, chancery division, New Jersey.

The plaintiff graduated from George Washington Medical School, with honors, in 1935, served his internship in recognized hospitals, and pursued postgraduate courses in surgical technique. In 1936, on receiving his license to practice medicine and surgery in New Jersey, he commenced to practice in Irvington. From January, 1941, until August, 1945, he was in the U. S. Army serving as attending surgeon at Fort Bragg, N. C., and later as battalion surgeon in the European theater of operations. On his honorable discharge, he resumed practice in Irvington. The Irvington General Hospital is the only hospital in Irvington and is a public institution operated and maintained by the town. It is used by the residents of Irvington, including the patients of the plaintiff. The plaintiff testified that in 1945 he was a member of the surgical staff and performed major operations upon his patients and assisted other doctors in similar operations. By a letter dated March 3, 1950, signed by the secretary of the hospital staff, the plaintiff was notified that at a recent meeting the staff decided, "That you will operate with a member of the Surgical Committee assigned, and that this Committee will endeavor to equalize the number of cases which each member will supervise." Under the date of March 20, 1950, he was informed by letter "that at the last regular meeting of the Medical Staff of the Irvington General Hospital, the Staff has decided that you are to have no privileges to do major surgery." The meetings of the staff preceding these communications were held without notice to or attendance by the plaintiff. He had not been notified or apprised of any charges against him, and, in fact, none have been made or filed against him. His loss of the right or privilege to perform major surgery on his patients was without cause so far as any formal record was concerned.

From 1934 to 1950, the management of the defendant hospital was under the direction of Percy A. Miller Jr., the Director of Public Affairs of the municipality, and since May, 1950, it has been under the direction of his successor on the town commission, the defendant, John R. Martin. Neither the board of commissioners nor the directors of public affairs, although permitted to do so, prepared or formulated any written rules and regulations pertaining to the hospital. Director Miller testified that it was his policy as administrator of the hospital to conform to the standards of the American Hospital Association and other similar organizations; that while they were not published or reprinted by him, he used them as guides in his administration. However, no formal rules and regulations were available to interested persons, although their adoption was required by the ordinances providing for the creation and maintenance of the hospital. Both Miller and Martin are laymen, and in the administration of the hospital they relied on the recommendations of the medical staff, which had adopted a constitution and rules and regulations. These rules and regulations set forth the various divisions of the medical staff but contain no provision requiring any special qualifications, training, or experience for physicians performing surgery at the hospital. The rules and regulations also provide that any member who, on investigation, has been found guilty of unprofessional or unethical conduct or violation of the constitution and by-laws of the staff may be rec-

ommended for suspension or expulsion for such conduct or violation. The rules then set forth the procedure to be followed in the case of such expulsion or suspension.

Whatever may be the legal effect of the constitution and the rules and regulations of the medical staff on the rights and privileges of the plaintiff, said the court, even if we were, merely for the purposes of this proceeding, to accord them binding effect, it is nevertheless true that no charges were ever preferred against the plaintiff. The defendants, members of the medical staff, testified that there was no specific complaint made against the plaintiff. If there was any basis for the suspension or revocation of the plaintiff's privileges, the procedure stipulated by the rules and regulations of the staff should have been followed, and in conformity with this procedure the plaintiff should have had an opportunity to appear and defend himself. The absence of compliance with their own rules and regulations, concluded the court, renders invalid the disciplinary action of the medical staff.

The plaintiff contended that he has the right to use the facilities of the hospital for surgery "under the same terms and conditions as those afforded to any other person licensed to practice medicine and surgery at said institution." The defendant, Director Martin, contended that he will not permit the plaintiff to perform major surgery because "it is his studied opinion . . . that the plaintiff lacks sufficient training and experience in the field of major surgery," that the staff serves "at his pleasure," and that he may "at his pleasure" remove physicians from the staff.

The general rules pertaining to the issue raised by this case are clear and well settled. A municipality may, of course, establish a public hospital. A hospital may prescribe reasonable rules concerning the qualifications of physicians allowed to practice therein. While the issuance of a license to practice medicine and surgery by the State Board of Examiners evidences the qualifications and the rights of the holder thereof to practice within the state, it does not give him the right *per se* to practice in a municipal institution. Obviously, the court continued, a municipality in the exercise of its duty to prescribe reasonable rules and regulations should set up standards or qualifications for those who wish to serve in the hospital; these should be general and not arbitrary or discriminatory; they should be clear and not vague, ambiguous, or uncertain. Thus, it would be perfectly reasonable for a municipality or those charged with the administration of the hospital to require that in order to perform major surgery, the physician be a diplomate in surgery, a fellow of the American College of Surgeons, or that he serve a probationary period. Such rules and regulations, being general and equally applicable to all licensed doctors, would be merely a means of defining and clarifying in the public interest the standards of the institution. However, in the instant case, said the court, the town and its directors did not formulate any set of rules and regulations. The defendant, director of public affairs, claims the right to act "at his pleasure." Such conduct is arbitrary and contrary to public policy or good administration. The rules and regulations of the medical staff have no binding effect, except as the plaintiff voluntarily agreed to be bound thereby. But it is obvious from the testimony that the medical staff not only failed to set up satisfactory standards or qualifications but also failed to observe those regulations that they did adopt pertaining to the filing of charges against staff members and the holding of hearings thereon before recommending to the director so serious a consequence as the deprivation of the plaintiff's privileges. It is clearly shown from the testimony, the court continued, that the plaintiff's privilege of performing major surgery on his patients, residents of the Town of Irvington who may be lawfully admitted to the hospital, has been and is being arbitrarily denied him. He is being deprived of the privilege without justifiable cause being stated. Accordingly the injunction requested by the plaintiff was granted and the hospital was restrained from denying the plaintiff the right to practice major surgery on his patients in the hospital. *Jacobs v. Martin*, 90 A. (2d) 151 (New Jersey, 1952).

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Internal Medicine, Chicago

92:767-926 (Dec.) 1953

- *Phrenic or Postemphysematous Hypertension. C. F. Geschickter and A. Popovici.—p. 767.
- Studies on Necrotizing Angiitis: IV. Periarthritis Nodosa and Hypersensitivity Angiitis. H. C. Knowles Jr., P. M. Zeek and M. A. Blankenhorn.—p. 789.
- *Hamman-Rich Syndrome: Analysis of Current Concepts and Report of Three Precipitous Deaths Following Cortisone and Corticotropin (ACTH) Withdrawal. J. W. Peabody Jr., H. A. Buechner and A. E. Anderson.—p. 806.
- Myoglobulinuria. R. Hed.—p. 825.
- Antibiotic Prophylaxis in Chronic Respiratory Diseases. L. V. McVay Jr. and D. H. Sprunt.—p. 833.
- Electrolyte, Water, and Mercury Excretion After Oral Administration of Neohydrin: Observations on Experimental Use of Neohydrin (1347EX), a Chloro Derivative, and Two Thiol (1353EX and 1431EX) Derivatives of 2-Methoxy-Propylurea. J. H. Moyer, C. A. Handley, R. A. Seibert and H. B. Snyder.—p. 847.
- Diffuse and Sometimes Recurrent Course of Diffuse Arteritis: Observations and Report of Patient Observed for 21 Years. R. H. Kampmeier and J. L. Shapiro.—p. 856.
- Theory of Thyroid Hormone Action: Conclusions Derived from Differences in Effect of Sodium 1-Thyroxine, Sodium *d*-Thyroxine, Triiodothyronine, and Potassium Iodide on Uptake of Radioactive Iodine by Thyroid Gland of Normal Human Subjects. P. Starr and R. Liebold-Schueck.—p. 880.
- Pathogenesis of Essential Hypertension. G. E. Wakerlin.—p. 889.

Phrenic or Postemphysematous Hypertension.—Geschickter and Popovici call attention to the probable role of emphysema or pulmonary rigidity as a factor in essential hypertension. To emphasize that they are not referring to hypertension of the pulmonary circulation, they labeled this form postemphysematous or phrenic hypertension. Sixty of 75 patients over 40 years of age with a history of asthmatic attacks of two or more years' duration had emphysema, and 28, or 46% of them, had arterial hypertension. Using similar standards for the upper limits of normal blood pressure (160/90 mm. Hg), the corresponding percentage of persons with hypertension in the general population is between 20 and 25%. In 15 patients with extrinsic emphysema not complicated by asthma but resulting from factors such as fixation of the chest wall from spondylitis, senility, and osteoarthritis hypertension also occurred, particularly in cases complicated by pulmonary fibrosis or by lordosis in association with abdominal obesity. It is concluded that long-standing emphysema with loss of negative intrathoracic pressure in patients over 40 can lead to hypertension, particularly when the emphysema is complicated by bronchial asthma or pulmonary fibrosis or when it concurs with postural lordosis and obesity. Phrenic hypertension seems to result from loss of intrapleural negative pressure, with increased venous pressure associated with renal congestion and compensatory arteriolar spasm. The role of venous congestion in hypertension can be demonstrated by placing the patient with emphysema in recumbent lordosis, which compresses the inferior vena cava. In normal persons the blood pressure is either lowered or remains constant. In persons with hypertension the systolic pressure is slightly elevated and the diastolic pressure is elevated from 15 to 20 mm. Hg or more. The blood pressure in patients with phrenic hypertension is even more elevated if the patients stand upright in a position of lumbar lordosis. Bad posture

with abdominal obesity added to emphysema seems to be one of the factors leading to hypertension in overweight persons with moderate emphysema. When pressure in the inferior vena cava is increased by tilting the patient downward or by his standing in the lordotic position, renal plasma flow is reduced and diastolic pressure elevated. In two dogs rendered hypertensive by wrapping the kidneys according to the Page method, hypertension was relieved by a portacaval shunt, the anastomosis of the portal circulation to the vena cava reducing venous pressure. Among the persons with emphysema and bronchial asthma there were many with myocardial infarction. The authors believe that this is explained by impaired venous coronary return to the right auricle in the presence of increased intrapleural pressure. The existence of cor pulmonale is a further impediment to coronary outflow. It is significant that both the hypertension and the asthma, and particularly the asthmatic attacks, may improve when these patients are digitalized or given coronary dilators, such as aminophylline. Finally, myocardial damage, with or without hypertension, as well as mild chronic anoxemia in patients with severe long-standing emphysema, explains left along with right ventricular hypertrophy that is found at autopsy in such patients.

The Hamman-Rich Syndrome.—Peabody and associates show that as experience with the Hamman-Rich syndrome has increased, it has become obvious that the term acute diffuse interstitial fibrosis of the lungs is both inaccurate and cumbersome. Various reports established the existence of chronic forms of the disease. Moreover, since the word fibrosis refers to the end-result, it would probably be better to speak of diffuse fibrosing interstitial pneumonitis. This term likewise is unwieldy, but more concise appellations, such as cirrhosis of the lung and idiopathic pulmonary fibrosis, lack specificity. For these reasons, the authors refer to these cases as the Hamman-Rich syndrome, which they define as an acute or chronic pulmonary disease of unknown etiology characterized clinically by cough, dyspnea, and cyanosis in association with minimal physical findings and a progressive, essentially afebrile course. The roentgenologic appearance conforms to no set pattern. The most distinctive feature is the microscopic appearance. The pulmonary interstitial tissue is pervaded by a profuse fibrous reaction varying from a proliferation of young fibroblasts to the deposition of large quantities of hyalinized connective tissue. Intermingled with the fibrous elements are numerous chronic inflammatory cells, consisting predominantly of lymphocytes and plasma cells, with a few macrophages and occasionally a number of eosinophils. Except for the administration of oxygen and symptomatic care, little can be done for these patients. Although the authors witnessed a most dramatic demonstration of the potential value of cortisone and corticotropin in the management of the Hamman-Rich syndrome, they remain impressed with the limitations and dangers of hormonal therapy. In three patients, a violent exacerbation of their pulmonary disease developed, in two after withdrawal of cortisone and in the other after a decrease in corticotropin dosage. All three died. The authors stress that patients with asymptomatic or mildly symptomatic diffuse indeterminate pulmonary disease should not be subjected to endocrine treatment, since the course is relatively benign. Patients with long-standing disease should probably not receive cortisone or corticotropin, since fibrosis precludes any significant improvement. If hormone therapy is decided upon, preferably in the early severe case, streptomycin should be administered concomitantly. No matter how slowly the hormone agents are interrupted serious withdrawal symptoms can be anticipated and, for that reason, once endocrine therapy has been instituted it would seem advisable to continue its use indefinitely. When withdrawal is tried, cortisone must be interminably continued so that the adrenal cortex will gradually resume its function, an effect augmented by small doses of corticotropin. At the first sign of an unfavorable trend, both cortisone and corticotropin should be reinstituted in large doses along with broad spectrum antibiotic therapy.

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Titles marked with an asterisk (*) are abstracted.

A.M.A. Arch. Ophthalmology, Chicago

50:671-796 (Dec.) 1953

- Distribution of Substrate-Specific Alkaline Phosphatases in Ocular Tissues. R. A. Allen and J. S. Friedenwald.—p. 671.
- Flicker Sickness. G. A. Ulett.—p. 685.
- Nature of Corneal "Canals" Produced by Perilimbal Injections of Hydrogen Peroxide. B. Friedman.—p. 688.
- Evaluation of Wounds of Rabbit Cornea Treated with Calsulphidryl (Hydrosulphosol). R. E. Rocknem.—p. 696.
- Visual Field Changes in Optic Neuritis. M. Chamlin.—p. 699.
- Reconstruction of Orbit with Polyvinyl Sponge: Report of Case. J. W. Henderson.—p. 714.
- Optic Neuropathy in Multiple Sclerosis: Optic Neuritis. S. Gartner.—p. 718.
- Effects of Beta Irradiation on Rabbit Lens. L. von Sallmann, C. M. Munoz and A. Drungis.—p. 727.
- Comparative Features of Plastic and/or Glass in Artificial-Eye Construction. S. F. Erpf.—p. 737.
- Ultraviolet Radiation and Vision. J. C. Ogilvie.—p. 748.
- Glaucoma: Review of Literature for 1952-1953. J. S. Haas.—p. 764.

Ultraviolet Radiation and Vision.—Ultraviolet radiation refers to the spectral region from approximately 300 to 400 m μ ; in other words, the near ultraviolet rays. In many textbooks the visible spectrum is said to end at 400 m μ , and the I.C.I. (International Commission on Illumination) luminosity curve does not extend beyond 380 m μ , but shorter wave lengths than this have been reported to be visible on several occasions. The wave lengths of about 300 m μ produce erythema and photophthalmia in the eye. Although the shorter wave lengths cannot penetrate to the retina, those between 300 and 400 m μ can have a harmful effect on vision. This paper discusses the visibility of the band of the spectrum and its possible effects upon visual function. In youth, the eye is reported to be sensitive to wave lengths down to 300 m μ , but the limit of the visible spectrum is higher in old age, owing to the increased absorption of the lens. Differences in lens absorption also lead to wide individual differences in sensitivity to ultraviolet radiation, but there are no data for the absorption of the human eye in the ultraviolet region of the spectrum. It has been claimed that exposure to ultraviolet radiation will impair dark adaptation, but the weight of evidence is against this view. Wave lengths above 305 m μ have no abiotic effect; consequently, any changes in the threshold would seem to be due to the light adaptation of the eye. Under the action of ultraviolet rays, the lens will fluoresce strongly, and the intensity of the fluorescence increases with age. Little or nothing is known of the effect of fluorescence on visual function. There is disagreement about the color sensation produced by ultraviolet radiation, but in most cases it is stated to be blue or blue-violet.

A.M.A. Arch. Pathology, Chicago

56:557-658 (Dec.) 1953

- Pathology of Muscle Changes in Experimental Poliomyelitis Enhanced with Aid of Cortisone. S. M. Aronson and G. Schwartzman.—p. 557.
- Action of Phoslole on Alloxan Diabetes in Rats and Rabbits. J. F. McCloskey, P. T. Chu and E. Perkins.—p. 572.
- Pathologic Anatomy of Coronary Heart Disease: Particular Reference to Cardiac Muscle Bundles. J. B. Male and A. Bledsoe.—p. 577.
- Intracapsular Precipitates Produced in Rabbits by Means of Sodium Polyacrylate Sulfonate. R. Hausman and P. M. Dreyfus.—p. 597.
- Calcium and Magnesium Content of Albuminoid Fraction of Human Aortae. H. Miller, A. Hirschman and D. M. Kraemer.—p. 607.
- Experimental Thyroid Tumorigenesis in Rats: Predominance of Neoplasm Type and Influence of Age. J. H. Van Dyke.—p. 613.
- Effect of Cortisone and Partial Starvation on Liver Regeneration. R. Perez-Tamayo, W. R. Murphy and M. Ihnen.—p. 629.
- Cerebrovascular Siderosis in Horses. L. Z. Saunders.—p. 637.

Muscle Changes in Poliomyelitis.—Aronson and Schwartzman point out that the search for reproducible extraneural lesions in the course of experimental poliomyelitis has been consistently unfruitful. Schwartzman, however, had demonstrated that cortisone potentiates the paralytic morbidity and the mortality of the Syrian hamster infected with type 2 poliomyelitis virus. After such enhancement of the experimental disease, visceral lesions, including myositis, appear. The present report is concerned with histological studies on such muscle lesions. The poliomyelitis virus used was the MEF₁ strain, and male Syrian hamsters weighing 20 to 28 gm. were employed in all experiments. A florid necrotizing myositis developed in the animals that had been pretreated with cortisone. The micro-

scopic lesions are characterized by rapidly progressing hyaline degeneration, loss of striations, edema, extensive necrosis, and mineralization. The microscopic picture is similar to that evoked by other neurotropic viruses in experimental animals. Evidence is presented elsewhere that there is a proliferation of the poliomyelitis virus in such sites.

A.M.A. Arch. Surgery, Chicago

67:779-946 (Dec.) 1953

- Recurring Pancreatitis and Associated Stenosis of Common Bile Duct: Treatment by Roux-Y Choledochojunostomy. F. F. Allbritten Jr.—p. 779.
- Surgical Treatment of Mitral Stenosis. E. C. Andrus, A. Blalock and W. R. Milnor.—p. 790.
- Hypotensive Anesthesia for Radical Pelvic and Abdominal Surgery. C. P. Boyan.—p. 803.
- Fractures of Ankle: V. Pronation-Dorsiflexion Fracture. N. Lauge-Hansen.—p. 813.
- Squamous Cell Anal Carcinoma. R. W. Buxton.—p. 821.
- Management of Remaining Common Duct Stones by Various Solvents and Biliary Flush Regimen. R. R. Best, J. A. Rasmussen and C. E. Wilson.—p. 839.
- Intussusception in Adult, with Emphasis on Retrograde Type. R. A. Deterling Jr., R. D. O'Malley and W. Knox.—p. 854.
- Acute Arterial Embolism. J. D. Des Prez and C. A. Hubay.—p. 865.
- Maintaining Viability of an Extremity with Acutely Obstructed Arterial Circulation: Arterial Autoperfusion Method: Preliminary Report. R. Green.—p. 875.
- Nature of Liver Failure Due to Complete Biliary Obstruction. C. A. Macgregor.—p. 878.
- Indications for Ligation of Inferior Vena Cava in Venous Thrombosis. J. T. Payne.—p. 902.
- Ovarian Influence upon Survival in Breast Cancer. S. C. Sommers, H. A. Teloh and G. Goldman.—p. 916.
- Pathologic Diagnoses in and Bases for 1,000 Hysterectomies. M. C. Wheelock and A. Pizzo.—p. 920.
- Trends in Orthopedic Surgery. P. R. Lipscomb.—p. 924.

Surgical Treatment of Mitral Stenosis.—Surgical relief of mitral obstruction was practiced in 17 men and 58 women with mitral stenosis between the ages of 20 and 49 years. These 75 patients were selected because of genuine and progressive circulatory disability associated with cough, paroxysmal nocturnal dyspnea, attacks of pulmonary edema after exertion or at rest, and hemoptysis. Of the 75 patients, 34 had excellent results from the surgical intervention, 17 good results, and 13 fair results. In two the procedure was a therapeutic failure, and nine died. Four deaths resulted from embolism, four from progressive cardiac failure and one from staphylococcal pericarditis. Considerable and sometimes dramatic improvement occurred in 51 patients and persisted in most of those followed up for three years or more. Clinical improvement in these patients must depend on the improved ability to increase the flow of blood through the lungs with exertion, without causing congestion in the critical capillary area. The physiological measurements so far applicable during exercise do not serve adequately to explain the subjective improvement of these patients. The capacity to withstand the physical stress of living is still the most informative test in this regard. The two most devastating complications are embolism at operation and reactivation of rheumatic carditis. The former is a surgical problem. The latter occurred in 5 of the 66 surviving patients; it calls for the most thorough application of the only known methods of preventing rheumatic fever—prophylaxis against Streptococcus infections of the respiratory tract with sulfadiazine or penicillin or, failing this, the prompt initiation of antibiotic therapy at the onset of respiratory infection. The need for surgical relief of mitral stenosis is determined by rheumatic fever. The ultimate success of this procedure will likewise depend on the subsequent control of that disease.

Hypotensive Anesthesia.—Hypotensive anesthesia was used in the past two years in 16 male and 98 female patients on whom various pelvic and abdominal operations, such as radical hysterectomy and node dissection, total or partial pelvic exenteration, pancreato-duodenectomy, partial hepatectomy, hemipelvectomy, resection of pelvic or abdominal tumors, major orthopedic operations, total vulvectomy, bilateral adrenalectomy, radical mastectomy, and thoracoabdominal gastroesophagectomy, were performed. The patients were selected for clinically unimpaired cardiovascular, renal, and respiratory functions. After proper premedication, the patient was given

thiopental (Pentothal) sodium intravenously, supplemented by tubocurarine chloride, and a plastic endotracheal tube of adequate bore was introduced orally. The tube was then attached to an ether-oxygen absorption circle and the patient placed in proper position. For pelvic surgery, a head-down tilt of about 30 degrees, with knees acutely bent, is sufficient, and, although the operative field is not the highest point, the postural ischemia produced in this way, proved to be satisfactory for all clinical purposes. The supine jackknife position was used for upper abdominal surgery (liver and pancreas). Here the head-down principle was preserved, and a maximal postural drainage of blood from the operative field was achieved. A semilateral jackknife position is recommended for thoracoabdominal approaches. After positioning of the patient, the blood pressure was reduced by intravenous administration of hexamethonium bromide in doses ranging from 10' to 100 mg. The systolic blood pressure dropped to 65 to 70 mm. Hg in most patients and was maintained at that level with additional doses of the drug, if necessary. It is desirable to maintain the hypotensive state for not longer than 75 to 100 minutes. After the excisional surgery was completed, the blood pressure was brought back to about 100 mm. Hg by elevating the legs, changing the patient's position to almost horizontal, and by infusing phenylephrine (Neo-Synephrine) hydrochloride or another vasopressor agent of a dilute solution. During this type of anesthesia the anesthesiologist must be constantly on the alert to observe for proper oxygenation and changes in blood pressure and pulse and to correct blood loss. While the blood pressure could not always be lowered to a satisfactory level in young adults, satisfactory results were obtained in the patients between the ages of 45 and 60 years. The recovery time was not prolonged, and the incidence of vomiting seemed reduced. Not only the blood loss was reduced but also concomitantly the tissues were more exactly dissected; principal blood vessels were more easily and clearly visualized for isolation and dissection, and insofar as cancer surgery is concerned, areolar tissues and lymph nodes were dissected en bloc in a more satisfying manner than is the case under ordinary anesthesia at usual blood pressure levels. Hypotensive anesthesia is still under investigation, and impaired cardiovascular, renal, and respiratory functions represent, so far, a definite contraindication for this technique. The author feels that hypotensive anesthesia has a place in selected cases in radical surgical procedures for advanced cancer.

Management of Remaining Common Duct Stones.—Best and co-workers studied the solvent action of various types of solutions or combinations with equal parts of chloroform or ethyl ether on gallstones. Solvent experiments carried out *in vitro* showed that chloroform and ether were effective on all stones containing cholesterol. Chloroform was somewhat superior. Mixed stones responded better to chloroform, and in some cases the addition of a fatty acid in a 1% solution to chloroform and ether increased the fragmentation and dissolution. Lauric, caprylic, and linoleic acids were most effective in this regard, but were never of sufficient value to justify their use. Heated chloroform was consistently much more effective than chloroform of room temperature. For the purpose of evaluating the effect of chloroform on liver and ductal tissue, the drug was instilled through a small polyethylene tube into the biliary tract of dogs. Nine dogs received injections, and seven had only the polyethylene tube inserted for control purposes. The animals were killed at intervals of from 5 to 30 days. At necropsy there was minimal gross change in the liver and ductal tissues in both groups. Microscopically there was essentially no injury to the ducts in either group. There was slight to severe liver damage in the form of central lobular necrosis in both groups. Ten patients with proved choledocholithiasis were subjected to chloroform instillations. Four to 5 cc. of chloroform heated to 60 C was injected in the side arm of a double lumen T-tube on two successive days. Most of the patients complained of some nausea and a little distress, and a few stated the nausea lasted for several hours. Only one patient complained of severe nausea and pain; she was a very nervous, uncooperative patient in whom the authors questioned using the procedure. The remaining patients tolerated the chloroform well and with no ill effects. A simplified three day biliary flush regimen was carried out in 14 patients in whom

the postoperative choledochogram revealed a remaining common duct stone. On the first and second days of the biliary flush regimen 4 to 5 cc. of chloroform heated to 60 C was instilled into the side arm of a new type, wide angle, double lumen T-tube that directed the solution away from the liver toward the duodenum and the portion of the common duct where remaining stones are usually seen. On the third day, 5 cc. of ethyl ether was slowly instilled into the T-tube, releasing pressure or drawing back on plunger to help control intraductal pressure that gave rise to any distress. Glyceryl trinitrate, 1/100 grain (0.6 mg.), was given sublingually five minutes prior to the instillation of ethyl ether. There were two failures. In the other patients (80%), the remaining common duct stones were successfully dislodged. Since it is known that stones or debris are frequently present in the common duct when choledochostomy has not been done, the three day flush regimen is recommended after every cholecystectomy. This is usually prescribed about one week postoperatively and is repeated two weeks later. By this method one is able to almost eliminate return of those symptoms presented before operation.

American J. Digestive Diseases, Fort Wayne, Ind.

20:369-404 (Dec.) 1953

- Chronic Superficial Gastritis: Observations on Clinical and Histopathologic Significance. E. D. Palmer.—p. 369.
Study on Use of Piromen for Treatment of Duodenal Ulcer in Man. W. H. Olson and H. Necheles.—p. 372.
Effect of Emulsifying Agents (Tween 60 and Span 60) on Gastro-Intestinal Tract. F. Steigmann, E. M. Goldberg and H. M. Schoolman.—p. 380.
Acute Pancreatitis. P. Edlin and B. H. Sullivan Jr.—p. 384.
Salmonellosis and Shigellosis in Cook County, Illinois: 3. Course of Shigellosis and Salmonellosis Before Microbiologic Diagnosis. O. Felsenfeld.—p. 389.
Rapid Control of Uncomplicated Diarrhea with Resion. H. K. Gabroy and G. J. V. Selsman.—p. 395.

American Journal of Human Genetics, Baltimore

5:293-434 (Dec.) 1953. Partial Index

- Relative Importance of Genetic and Environmental Factors in Determination of Human Hair Pigment Concentration. B. L. Hanna.—p. 293.
*Heredity in Relation to Variable Resistance to Pulmonary Tuberculosis. K. Planansky and G. Allen.—p. 322.
Severe Erythroblastosis Fetalis Caused by Sensitization to Rare Human Agglutinin. A. S. Wiener and G. J. Brancato.—p. 350.
Inheritance of Hand and Foot Anomalies in Six Families. O. Johnston and R. W. Davis.—p. 356.

Heredity in Resistance to Pulmonary Tuberculosis.—A 10 year follow-up study was conducted on 43 monozygotic and 30 dizygotic pairs of twins in which both twins of each pair had chronic pulmonary tuberculosis and on 40 monozygotic pairs in which only one twin was affected. Intra-pair similarities and dissimilarities in the initial stage, subsequent course, and clinical outcome of the disease were analyzed. The influence of certain modifying factors, namely adequacy of hospitalization, differences in life conditions, and nonspecific constitutional factors, was considered. It was found that simultaneous onset of the disease was more frequent in the monozygotic than in the dizygotic pairs. The extent and pathological character of the initial lesions (at time of diagnosis) also were more frequently similar in the monozygotic than in the dizygotic pairs. In the monozygotic pairs, the clinical outcome was similar or dissimilar in about equal proportions. In most pairs the dissimilarity was between fatal outcome in one partner and arrest of the disease in the other. This indicates that even when one twin died of tuberculosis his genotypically identical partner had a statistically fair chance of survival with arrested disease. In the majority of monozygotic pairs with similar clinical outcome, the onset was simultaneous. While prompt and regular hospitalization was the rule in the arrested cases and inadequate hospitalization was noted in most of the fatal cases, an unequivocal causal relationship could not be established between clinical outcome and adequacy of treatment. In the monozygotic pairs discordant as to tuberculosis a high level of resistance has been suggested by the prevalence of the tendency to repair in the tuberculous lesion and by the preferential development of tuberculosis in those twin partners in whom other pathological conditions were found, preceding or concomitant to tuberculosis.

American Journal of Medicine, New York

15:749-896 (Dec.) 1953

SYMPOSIUM ON ELECTROLYTE METABOLISM

- Introduction to Symposium on Electrolyte Metabolism. G. H. Mudge.—p. 761.
- Role of Kidney in Regulation of Acid-Base Metabolism. A. Gillman and P. Brazeau.—p. 765.
- Electrolyte Disturbances in Adrenal Diseases. A. I. Knowlton.—p. 771.
- Sweat Electrolyte Disturbances Associated with Childhood Pancreatic Disease. P. A. di Sant'Agnese, R. C. Darling, G. A. Perera and E. Shea.—p. 777.
- Effect of Circulatory States on Determinations of Blood Volume. M. I. Gregersen.—p. 785.
- Coma Mechanisms. J. F. Fazekas and A. N. Bessman.—p. 804.
- Toxic Psychoses and Allied States. S. Cohen.—p. 813.
- Myopathies: Including Their Appearance in Constitutional Disease. K. L. Zierler and J. L. Lillenthal Jr.—p. 829.

American Journal of Obstetrics & Gynecology, St. Louis

66:1161-1394 (Dec.) 1953. Partial Index

- Influence of Weight Gain on Pregnancy: Review of 1,000 Private Cases. S. A. Alexander and J. T. Downs III.—p. 1161.
- Allergy—Factor in Abortions?: Report on Two Cases. J. H. Herrod.—p. 1168.
- Face Presentation: Review of 94 Cases. T. Reinke.—p. 1185.
- Vaginal Delivery Following Cesarean Section. J. R. Harris Jr.—p. 1191.
- Disturbance of Vitamin B₆ Metabolism in Pregnancy: III. Abnormal Vitamin B₆ Load Test. M. Wachstein and A. Gudaitis.—p. 1207.
- Importance of Gravity in Delayed Ligation of Umbilical Cord. S. Duckman, H. Merk, W. X. Lehmann and E. Regan.—p. 1214.
- Effect of Travel upon Interruption of Pregnancy: Analysis of 1,917 Cases with Minimum Journeys of 300 Miles. J. A. Guilbeau Jr. and J. L. Turner.—p. 1224.
- Use of Mixture of Morphine and N-Allylnormorphine as an Analgesic. B. E. Cappe, S. Z. Himel and F. Grossman.—p. 1231.
- Five-Year Study of Elderly Primiparas. B. A. G. Weiss.—p. 1235.
- Use of Hormones for Prevention of Breast Engorgement and Lactation. J. S. Renzo.—p. 1248.
- Short Umbilical Cord. R. H. Rosen.—p. 1253.
- Aneurysm of Splenic Artery in Pregnancy. A. J. Tomsykoski, R. C. Stevens, P. A. Izzo and C. E. Rodriguez.—p. 1264.
- Interstitial Pregnancy: Survey of 45 Cases. L. B. Felms and P. Pedowitz.—p. 1271.
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- Endocrine Allergy and Therapeutic Use of Pregnanediol. G. P. Heckel.—p. 1297.
- Tolluidine Blue—An Evaluation in Treatment of Uterine Bleeding. W. Bickers.—p. 1313.
- Diagnostic Accuracy of Endometrial Aspiration Smear. E. L. Hecht.—p. 1321.

American Journal of Ophthalmology, Chicago

36:1497-1656 (Nov.) 1953

- Detachment of Vitreous as Seen by Slitlamp Examination: With Notes on Technique of Slitlamp Microscopy of Vitreous Cavity. D. K. Pischel.—p. 1497.
- Treatment of Abraded Corneas of Rabbits with Chloresium Ointment and Tantalum-Oxide Powder. H. G. Cole and W. L. Hughes.—p. 1508.
- *Oxygen Studies in Retrolental Fibroplasia: II. Production of Microscopic Changes of Retrolental Fibroplasia in Experimental Animals. A. Patz, A. Eastham, D. H. Higginbotham and T. Kleh.—p. 1511.
- Surgery of Congenital Glaucoma: Review of 196 Eyes Operated by Goniotomy. O. Barkan.—p. 1523.
- An Epidemic of Conjunctivitis in Colorado Associated with Pharyngitis, Muscle Pain and Pyrexia. T. A. Cockburn.—p. 1534.
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- Effect of Harderian and Lacrimal Glands upon Regeneration of Corneal Epithelium. G. K. Smelser and V. Ozanics.—p. 1545.
- Etiologic Considerations of Vertical Muscle Defects: Part II. Infra-nuclear Vertical Defects: Conclusion. W. H. Fink.—p. 1551.
- Ridley's Cataract Operation. A. de Roeth Sr.—p. 1568.
- Spherophakia with Brachydactyly: Comparison with Marfan's Syndrome. L. A. Probert.—p. 1571.
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- Iridescent Crystals of Macula: Experimental Study on Rabbits. J. L. Pavia.—p. 1591.
- Quantitative Measurements of Visual Fields for Colors: With Direct-Current Method. Y. Arakawa.—p. 1594.
- Chronology of Pterygium Therapy. J. W. Rosenthal.—p. 1601.

Retrolental Fibroplasia Produced by Oxygen in Animals.—Patz and associates point out that in a nonrandom study conducted in the premature nursery of the Gallinger Municipal Hospital between July, 1948, and January, 1951, a striking

correlation between duration of oxygen therapy and incidence of both mild and severe retrolental fibroplasia was noted. A controlled random study was instituted to evaluate critically the role of oxygen therapy. The results of this controlled nursery study conducted between January, 1951, and May, 1953, supported the previous observations and justified the conclusion that prolonged high oxygen administration is an important factor in the development of retrolental fibroplasia. Parallelizing the nursery study an extensive investigation was started to evaluate both the ocular and systemic effect of oxygen on several species of animals. By exposing newborn rats, mice, kittens, and puppies to 70 to 80% oxygen concentration for varying periods of time, changes in the eyes closely resembling human retrolental fibroplasia resulted. The characteristic endothelial nodule in the nerve fiber layer of the retina, with budding of vessels through the internal limiting membrane into the vitreous, and retinal hemorrhages were produced. The mouse and the kitten proved to be the most satisfactory laboratory animals for this study. On the basis of clinical and experimental observations, the authors make the following recommendations (1) a rigid curtailment of oxygen therapy, compatible with the physical status of the premature infant, should be practiced in the nursery; (2) to insure this, an accurate oxygen analyzer should be standard equipment in every premature nursery; (3) frequent samples of oxygen tension should be taken when oxygen is administered; (4) except for emergency use, oxygen therapy should require a specific order; (5) oxygen should be ordered by concentration rather than by flow rate.

American Journal of Psychiatry, New York

110:401-480 (Dec.) 1953. Partial Index

- Dynamics and Classification of Disordered Behavior. S. Rado.—p. 406.
- Psychotherapy of Schizophrenia in Outpatient Setting. J. Mann.—p. 448.
- Psychiatric Problems in Elderly Residents of County Homes: Report and Evaluation of Survey Conducted in County Homes in Iowa. R. Ginzberg and W. C. Brinegar.—p. 454.
- Individualizing Care of the Aging. H. E. Clow.—p. 460.

American Journal of Surgery, New York

86:643-766 (Dec.) 1953

- Total Gastrectomy. M. T. Hoerner.—p. 646.
- Some Elastic Characteristics of Fresh and Freeze-Dried Aortic Grafts. J. W. Pate and P. N. Sawyer.—p. 653.
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- Cervical and Upper Thoracic Esophagogastronomy in Treatment of High Esophageal Carcinoma. M. B. Noyes and R. K. Iverson.—p. 665.
- Developmental Cysts as Source of Perianal Abscesses, Sinuses and Fistulas. W. J. Hawkins and R. J. Jackman.—p. 678.
- Duplication of Ileum. J. J. Burnett, R. E. Sullivan, R. C. Stevens and A. J. Tomsykoski.—p. 684.
- *Management of Acute Gastroduodenal Perforations. E. M. Miller, W. L. Mersheimer and M. E. Silverstein.—p. 688.
- Leiomyosarcoma of Stomach: Review of Literature and Report of Seven Cases. C. L. Poskanzer and R. M. Schmidt.—p. 696.
- Primary Torsion of Omentum: Obscure Cause of Acute Surgical Condition of Abdomen. W. L. Martin, F. Tropea Jr. and T. Zaydon.—p. 707.
- Practical Technics in Care of Burn Patient. J. H. Davis Jr., C. P. Artz, E. Reiss and W. H. Amspacher.—p. 713.
- Prostatitis Following Ureterolithotomy. D. Presman.—p. 718.
- Furadantin in Therapy of Genitourinary Tract Infections. W. E. Schatten and L. Persky.—p. 720.
- Profit Dowel Intervertebral Body Fusion as Used in Lumbar Disc Therapy: Preliminary Report. B. R. Wiltberger.—p. 723.
- Traumatic Scapulohumeral Amputation. W. V. Wax.—p. 728.

Management of Acute Gastroduodenal Perforations.—Miller and co-workers have evaluated data derived from their study of 195 cases of acute gastroduodenal perforation. The 89 patients observed between 1930 and 1941, inclusive, had been reviewed in 1943. The present study includes an additional series of 106 patients with acute gastroduodenal perforations, who were treated at the same hospital during the nine year period from 1942 to 1951, inclusive. By comparing these two groups the authors endeavor to evaluate the efficacy of their therapeutic methods. It was found that perforation of gastro-duodenal ulcer is occurring in older patients and in women with increasing frequency. Whereas in the earlier group of patients 96% of the patients were men, in the later group only 84% were men. Signs and symptoms of perforation may

be less typical in the elderly and in women; however, a higher index of suspicion should bring these patients to surgery earlier and should result in a reduction of the present high mortality rate. The choice of treatment must be governed by a careful appraisal of the several factors. Simple plication remains the method of choice in most instances, particularly when perforation is the first indication of ulcer disease or when the history is of short duration. The older patient is most safely treated by simple plication. Immediate partial gastrectomy is indicated when spontaneous gastroduodenal hemorrhage and perforation coexist and is the treatment of choice when the perforation occurs through a malignant lesion. Immediate gastric resection should be considered seriously when there is a perforated gastric ulcer in a female patient. It is advisable that the following criteria are met before proceeding with subtotal gastric resection: (1) the patient in good constitutional condition and less than 50 years of age; (2) perforation of less than 12 hours' duration; (3) no sign of clinical shock; (4) no evidence of extensive peritonitis; and (5) operative and anesthetic facilities comparable with those available for an elective gastrectomy. Conservative treatment is best employed when the perforation has been present for more than 24 hours, in the presence of severe shock, or in the presence of severe constitutional disease.

Anesthesiology, Philadelphia

14:535-638 (Nov.) 1953

- Effects of N-Allylmorphine upon Respiratory Depression Due to Morphine in Anesthetized Man with Studies on Respiratory Response to Carbon Dioxide. C. M. Landmesser, S. Cobb and J. G. Converse.—p. 535.
- Effect of Levallorphan Tartrate upon Opiate Induced Respiratory Depression. W. K. Hamilton and S. C. Cullen.—p. 550.
- Penetration of Local Anesthetics. T. G. Brown Jr. and F. P. Luduena.—p. 555.
- Pediatric Preanesthetic Preparation. C. L. Burstein.—p. 567.
- I. Pyribenzamine as Topical Anesthetic Agent: Its Use in Bronchoscopy. T. J. Mathieu and W. B. Crandell.—p. 572.
- Sites of Sensory Blockade During Segmental Spinal and Segmental Peridural Anesthesia in Man. M. J. Frumin, H. Schwartz, J. J. Burns and others.—p. 576.
- Analysis of Gases in Blood with Mass Spectrometer: III. Method for Determination of Nitrous Oxide in Blood. J. S. Hattox, J. M. Saari and A. Faulconer Jr.—p. 584.
- Electrocardiographic Studies During Endotracheal Intubation: VI. Effects During Anesthesia with Thiopental Sodium Combined with Muscle Relaxant. S. Rosner, W. Newman and C. L. Burstein.—p. 591.
- Control of Vagal Cardiovascular Reflexes During Surgery Employing β -Diethylaminoethyl Xanthene-9-Carboxylate Methobromide. K. Fisher and T. Winsor.—p. 596.
- Nomenclature for Methods of Inhalation Anesthesia. J. Moyers.—p. 609.

Annals of Surgery, Philadelphia

138:823-944 (Dec.) 1953. Partial Index

- Problems in Management of Massive Bleeding from Gastrointestinal Tract. H. R. Hawthorne and P. Nemir Jr.—p. 823.
- DeQuervain's Disease: Analysis of 52 Cases. T. A. Lamphier, N. G. Long and T. Dennehy.—p. 832.
- Blood Diastase Activity in Cerebral Trauma. E. A. Smolik, F. P. Nash and J. Ninecort.—p. 863.
- Effects of Skin Homografts on Growth Factors of Surrounding Host Epithelium. L. R. Rubin, A. A. Diecidue and R. D. Murray.—p. 867.
- *Patent Ductus Arteriosus with Reversal of Blood Flow: Report of Successful Surgical Closure and Physiologic Studies. A. A. Kattus and W. H. Muller.—p. 870.
- *Occurrence of Subcutaneous Fat Necrosis in Infant Following Induced Hypothermia Used as Adjuvant in Cardiac Surgery. H. A. Collins, M. Stahlman and H. W. Scott.—p. 880.
- Gastroileostomy. A. D. McKenzie and H. R. Robertson.—p. 911.

Patent Ductus Arteriosus with Reversed Blood Flow.—The first case of a successful surgical closure of a patent ductus arteriosus with reversal of normal blood flow is reported. The patient, a 36-year-old man, entered Wadsworth General Hospital of the Los Angeles Veterans Administration Center in September, 1952, complaining of shortness of breath and pain in the chest after an alcoholic episode. His history revealed other cardiac disturbances that had been ascribed to rheumatic fever. Examination revealed a Graham Steell murmur secondary to severe pulmonary hypertension and other signs that led to the diagnosis of patent ductus arteriosus with reversed blood flow. It appeared that the right-to-left flow in the shunt could be reversed by means of small alterations in the degree of pulmonary vascular resistance; the greater and lesser circula-

tions seemed to be critically balanced in this case. At operation, the ductus was sutured, but not divided. There were various postoperative complications, but by the 10th postoperative week, the patient was ambulatory and showed great subjective improvement. He left the hospital permanently without permission before clinical signs of a change in pulmonary arterial pressure appeared. Six weeks after his untimely departure, the patient wrote that he had returned home. The authors feel that, when possible, an anomaly of this type should be corrected surgically, to spare the patient an inactive life with early death. The factors to be considered in deciding upon surgery are presented.

Fat Necrosis After Hypothermia.—Induced hypothermia was employed in a surgical operation lasting 2 hours and 25 minutes for a tetralogy of Fallot in a 4½-month-old boy. He was discharged from hospital in good condition 14 days postoperatively, but, in the following six days, slight blue, raised, hard areas developed in the skin of various parts of his body. These lesions were of an inflammatory nature and were accompanied by pain and low grade fever. Biopsy showed evidence of an intact dermis with subcutaneous fat necrosis. The condition improved with the administration of corticotropin and oxytetracycline, but three days after the second discharge the patient had an acute episode of screaming, ashy cyanosis, and posttation. After four more of these attacks, which showed no signs of cardiac failure but resembled severe angina pectoris in adults, the baby died. Autopsy permission was not granted. The authors are of the opinion that the fat necrosis was caused by the exposure to cold, but that the patient's death did not necessarily result from this condition. They do not wish to condemn controlled hypothermia as an aid to cardiovascular surgery.

Arkansas Medical Society Journal, Fort Smith

50:95-110 (Nov.) 1953

- Cancer—The New Look—Review. A. Kahn Jr.—p. 95.
- The Long Road. L. K. Hundley.—p. 96.
- Otolaryngology Today: Its Limitations and Opportunities. J. W. McLaurin.—p. 98.

50:111-132 (Dec.) 1953

- Committee on Cancer Control. C. A. Archer.—p. 111.
- The Practice of Medicine is a Religion. A. R. Sugg.—p. 112.
- Obstetrics in General Practice. W. A. Fowler.—p. 116.
- What's New and True in Internal Medicine. C. A. Thompson.—p. 120.

Circulation Research, New York

1:475-562 (Nov.) 1953. Partial Index

- "Sodium Space" and Body Sodium Content, Exchangeable with Sodium, in Normal Individuals and Patients with Ascites. G. F. Warner, N. J. Sweet and E. L. Dobson.—p. 486.
- Acute Hemodynamic Effects of Hexamethonium in Normotensive Man. L. Rakita and S. M. Sancetta.—p. 499.
- Measurement of Coronary Blood Flow in Dogs and Man from Rate of Myocardial Nitrous Oxide Desaturation. W. T. Goodale and D. B. Hackel.—p. 502.
- Myocardial Carbohydrate Metabolism in Normal Dogs, with Effects of Hyperglycemia and Starvation. W. T. Goodale and D. B. Hackel.—p. 509.
- Alteration of Lipemia-Clearing Effect of Heparin Following Intravenous Injection of Thorium Dioxide (Thorotrast). V. S. LeQuire, M. E. Gray and C. A. Cobb.—p. 523.
- Effect Cholesterol-Free Brain Fraction Against Diet-Induced Atherosclerosis. R. J. Jones, S. C. Kraft, S. Huffman and others.—p. 530.
- Influence of Ultrasonic Irradiation on Temperature and Blood Flow in Human Skeletal Muscle. R. H. Bickford and R. S. Duff.—p. 534.
- Spread of Electrical Activity Through Wall of Ventricle. A. M. Scher, A. C. Young, A. L. Malmgren and R. R. Paton.—p. 539.
- Dynamics of T-1824 Distribution in Patients with Traumatic Arteriovenous Fistulas. G. E. Schreiner, N. Freinkel, J. W. Athens and W. Stone.—p. 548.

Connecticut State Medical Journal, New Haven

17:975-1044 (Dec.) 1953

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- Telescopic Spectacles: Neglected Refinement of Refraction for Cases of Subnormal Vision. H. L. Birge and L. W. Zimmerman.—p. 985.
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- Treatment of Tetanus Using Succinylcholine Chloride: Case Report. C. R. Hamilton, R. M. Tovell and C. M. Barbour Jr.—p. 991.
- New Challenges to Medical Education. W. C. Rappleye.—p. 994.
- Comprehensive Medical Service at Home: Additional Resource for Private Practitioner. S. Shindell.—p. 996.

Diabetes, New York

2:345-432 (Sept.-Oct.) 1953

Effect of Purified Glucagon (Hyperglycemic-Glycogenolytic Factor, HIGF) on Carbohydrate and Corticoid Metabolism in Normal and Diabetic Subjects. W. R. Kirtley, S. O. Waife, O. M. Helmer and F. B. Peck.—p. 345.

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Clinical Value of a Simple Qualitative Test for Plasma Acetone in Diabetic Coma. G. G. Duncan and R. J. Gill.—p. 353.

Pharmacologic and Clinical Studies on Two New Types of Long-Acting Insulins with Special Reference to Zinc Insulin Preparations (Novo): Preliminary Report. J. L. Izzo, A. M. Gabiga and J. Hoffmaster.—p. 358.

Comparison of Globin Insulin and NPH Insulin. J. W. Berg, D. W. Ortmeyer, D. L. Ott and R. L. Jackson.—p. 365.

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Does Glucose Stimulate Adrenocortical Activity? N. G. Schneberg.—p. 372.

Renal Vascular Disease in Diabetes Mellitus. E. T. Bell.—p. 376.

Renal Vascular Disease in Diabetes Mellitus.—Bell's microscopic study of the kidneys of 688 diabetic male and 777 diabetic female patients on whom necropsies were performed demonstrated that renal arteriosclerosis is more frequent and severer in diabetes than in primary hypertension. Of the 1,465 patients, 33 were less than 20, 234 were between the ages of 20 and 50, and 1,198 were over 50. Renal arteriosclerosis was observed in about one-half of those between 20 and 50 years and in nearly two-thirds of those past the age of 50. The highest incidence was in elderly women. It was not due to hypertension since it was observed in over one-half of elderly nonhypertensive diabetic patients. It appears to be caused by the diabetic state, and in young diabetic patients it is largely responsible for the development of hypertension. The incidence of arteriosclerosis increases with the duration of diabetes, particularly in young patients. Hypertension was present in 60.9% of the diabetic men and in 67.8% of the diabetic women over 50 years of age. Presumably the hypertension of elderly diabetics is chiefly of the primary type; that is, a majority of them present an accidental association of diabetes and primary hypertension. Nodular intercapillary lesions were observed in 12.8% of the 688 diabetic males and in 19.4% of the 777 diabetic females. The frequency of intercapillary lesions increases with the duration of diabetes, particularly in younger patients. In diabetics under 50 years of age intercapillary lesions are much more frequent in hypertensive persons, but after that age the relation to hypertension is much less prominent. Satisfactory qualitative examinations for proteinuria were made at the last hospital admission in 897 of the 1,465 patients; the clinical data and the necropsy observations were reviewed in all of the diabetics who had edema of any degree. Intercapillary lesions may be present when proteinuria is mild or completely absent, but a severe proteinuria suggests the presence of the glomerular lesions, particularly in younger diabetics. Severe edema in a diabetic under 50 years of age is usually of renal origin and strongly suggests the presence of intercapillary glomerulosclerosis, but in the older diabetics edema is of much less diagnostic value with respect to the presence of a renal lesion since it is usually due to cardiac failure or other causes. The nephrotic syndrome, rigidly defined as proteinuria of 2+ or more and edema 2+ or greater, developed in 26 (45.6%) of 57 patients with intercapillary glomerulosclerosis aged less than 50 years and in 42 (14.9%) of 282 aged over 50. Intercapillary glomerulosclerosis is, therefore, not a distinct entity in the sense that it usually produces a recognizable clinical syndrome. Renal insufficiency, usually clinical uremia, occurred in 36 (63%) of the 57 patients with intercapillary glomerulosclerosis aged less than 50 years and in 80 (26%) of 308 aged over 50. Renal insufficiency in a diabetic patient is due chiefly to arteriosclerosis and intercapillary glomerulosclerosis. Renal insufficiency in primary hypertension is due largely to obstruction of the small renal arteries in the absence of primary glomerular lesions and with arteriosclerosis being inconspicuous. In diabetics aged less than 50 years the presence of intercapillary glomerulosclerosis is strongly indicated by severe proteinuria, severe edema, hypertension, or retinitis; but after the age of 50 these symptoms and signs have much less diagnostic significance.

Endocrinology, Springfield, Ill.

53:585-700 (Dec.) 1953. Partial Index

State of Progesterone in Placental Tissue. W. H. Pearlman and E. Cerceo.—p. 599.

Assay of Follicle Stimulating Hormone Based on Augmentation with Human Chorionic Gonadotropin. S. L. Steelman and F. M. Pohley.—p. 604.

Factors Affecting In Vitro Metabolism of Adrenal Steroids by Liver Tissue. H. Bacchus.—p. 617.

Effect of Anesthetic Agents on Thyroid Activity of Rat. A. W. Wase, E. Repplinger and W. C. Foster.—p. 630.

Further Observations on Hypertensive Properties of Compound F Acetate in Rat. S. M. Friedman, C. L. Friedman and M. Nakashima.—p. 633.

Purification of Bovine Thyrotropic Hormone by Ion Exchange Chromatography. M. L. Heideman Jr.—p. 640.

Diuresis During Maintenance of Adrenalectomized Dogs with Ascites on Cortisone. J. O. Davis and D. S. Howell.—p. 653.

Effects of Menstrual Cycle on Metabolism of Human Endometrium. D. D. Hagerman and C. A. Villee.—p. 667.

Qualitative Changes in Urinary Gonadotrophins in Human Pregnancy During Period of Rapid Increase in Hormone Titer. R. A. Lyon, M. E. Simpson and H. M. Evans.—p. 674.

Florida Medical Association Journal, Jacksonville

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Ultrasonic Therapy: Review of Its Present Status and Future Possibilities. K. Phillips.—p. 383.

Report of Snake Bites in Florida and Treatment: Venoms and Antivenoms. E. H. Andrews and C. B. Pollard.—p. 388.

Management of Hypertension. J. S. McMichael.—p. 397.

Role of Health Officer and Physician in Civil Defense Program. J. M. Whitney.—p. 400.

40:441-520 (Jan.) 1954

Southern Florida and the Cardiac Patient. S. Davidson.—p. 459.

Surgical Treatment of Cancer of Cervix and Uterine Fundus. J. H. Pratt.—p. 463.

High Creatinemia with Recovery in Patient with Congenital (Single) Kidney. S. J. Pearlman.—p. 470.

Basic Principles of Medical Renal Disease. D. A. J. Morey.—p. 473.

Georgia Medical Association Journal, Atlanta

42:517-542 (Dec.) 1953

Diabetes and Tuberculosis. S. Jacobs, A. J. Leonard and I. Yager.—p. 519.

Röntgenologic Considerations of Gastro-Intestinal Bleeding. R. D. Moreton.—p. 523.

Vaginal Discharge. J. B. Traylor.—p. 529.

Vaginal Discharge.—Traylor discusses 12 different causes of abnormal vaginal discharge. In the presence of cancer of the cervix, fundus, vulva and vagina, the discharge may be serous, purulent, sanguineous, or any combination thereof. Inspection of the vulva and vagina may disclose an ulceration. A dark field examination is imperative, and, if the results are negative, a biopsy should be performed. A syphilitic chancre may occur on any part of the genitals and may be confused with cancer or any of the other ulcerative venereal diseases. Tuberculosis also may appear as an ulceration on the genitals and tends to form sinuses. The discharge may be watery or bloody at first and later caseous. Chancroid, lymphopathia venereum, and granuloma inguinale do not occur as commonly as the three diseases previously described, but they must be considered in the differential diagnosis of ulcerative lesions of the lower portion of the genital tract. Skin tests with Ducrey antigen and the Frei test are useful in making the diagnosis of chancroid and lymphopathia venereum. Donovan bodies are found in tissue smears taken from lesions of granuloma inguinale. The most frequent cause of vaginal discharge is Trichomonas vaginalis. When Trichomonas infection is suspected, the speculum is inserted with no lubricant, and a small amount of the discharge is gathered on an applicator and placed in 1 cc. of isotonic sodium chloride solution. Examination of a drop of this suspension under the microscope will disclose the flagellated organisms. The diagnosis of the next most frequent cause of vaginal discharge, moniliasis, is made by fixing a similar preparation to that used for the diagnosis of Trichomonas. In the wet smear the finding of mycelial threads verifies the diagnosis. In ovulatory bleeding the pain and spotting can usually be controlled by the oral administration of 10 mg. of methyl testosterone for 20 days, beginning on the first day of a menstrual cycle. Thyroid extract is helpful in the treatment of

Journal of Allergy, St. Louis
24:479-580 (Nov.) 1953

- Effect of Food on Rate and Adrenal Activity. H. Van Cauwenberge, J. Van der Vliet and M. Vliers.—p. 479.
- Proteolysis of Cottonseed Allergen. J. R. Chambers, E. J. Coulson and others.—p. 483.
- Changes in Expiratory Rate Observed During Measurement of Vital Capacity in Asthma. F. C. Lowell and I. W. Schiller.—p. 492.
- Effect on Rate of Oxygen Saturation of Arterial Blood Associated with Induced Asthmatic Attacks. F. C. Lowell, I. W. Schiller, M. T. Lynch and A. Lowell.—p. 499.
- Examination of Treatment of Ragweed-Sensitive Patients with Adrenocortical Hormone in Gelatin. J. Roy, R. A. Cooke and W. B. Sherman.—p. 506.
- Prolonged Ambulatory Use of Cortisone and ACTH for Bronchial Asthma and Other Allergies. H. H. Gelfand.—p. 510.
- Sensitivity to Cornstarch: Case Report. A. D. Spielman.—p. 522.
- Antigen-Antihistamine Mixture for Treatment of Highly Sensitive Hay Fever Patients. I. Ripps and A. M. Fuchs.—p. 525.
- Use of Pentan in Asthma: Spirometric Evaluation. S. Dann, F. R. Brown and H. S. Kupperman.—p. 532.
- Anaphylactic Shock Following Penicillin Therapy in Bronchial Asthma. A. Sterling.—p. 542.
- Use of I^{131} in Immunologic Investigation. F. J. Dixon.—p. 547.

Cortisone and Corticotropin for Allergies.—Of a large group of ambulatory patients with bronchial asthma and allied allergies treated with cortisone or corticotropin (ACTH), 18 with bronchial asthma and 9 with allergic dermatitis were selected as representative. The causative factors included inhalants, contactants, ingestants, and infections. Severe cases of bronchial asthma or dermatitis required an initial dose of cortisone of 200 mg. daily for the first few days. On improvement this dose was reduced to 100, 75, 50, and 25 mg., with a final maintenance dose as low as would keep the patient symptom-free, usually 12.5 mg. daily or every other day, accompanied by 10 or 20 units of corticotropin gel once or twice a week. Less severe cases responded well to initial daily doses of 100 or even 75 mg. of cortisone, reduced gradually to a low maintenance dose of 12.5 mg. every two or three days, usually with, but sometimes without, the addition of corticotropin gel. Excellent results were obtained in all but 3 of the 18 patients with asthma and in all 9 patients with allergic dermatitis. In only one patient was there a true therapeutic failure; in the other two, good or fair results were achieved initially, but the patients did not continue with the treatment. Remission of symptoms usually was maintained by the application of standard therapy, such as removal of the patient from specific irritants, change of diet, elimination of infectious foci, and immunization, plus small maintenance doses of cortisone orally supplemented by corticotropin gel. Complete or sudden discontinuance of the steroid hormones should be avoided to guard against the exhaustion state. Tapering off can best be accomplished first by a gradual reduction in the daily dose, then by an increased interval between doses. Side-reactions were infrequent, and in only three patients were

they serious enough to call for withdrawal of the hormones. While the mode of action of cortisone and corticotropin in allergy is not known, their clinical usefulness in bronchial asthma, pollen asthma, and allergic dermatitis is well established. However, there is no evidence that the hormones influence the further course of allergic diseases or that either arrest or complete cure is achieved after they have been discontinued. It is only when maintenance therapy is continued for long periods, that the benefits are lasting for many months to more than one year. Clinical symptoms recur sooner or later after the hormones have been completely withdrawn, unless the irritating factor is eliminated.

Anaphylactic Shock After Penicillin Therapy.—Anaphylactic shock occurred in nine patients with bronchial asthma who had received daily injections of 300,000 units of penicillin G or procaine penicillin. One patient was sensitized after 12 injections, two after 18 injections, four after 26 injections, and two after 54 injections. All of the patients noticed some symptoms after the one or two injections that preceded the shock-eliciting injection but did not consider them severe enough to mention. Syncope, mild to severe, at the time of the injection or a feeling of faintness recurring periodically for the following three to four hours, sensation of burning or heat throughout the body, local or generalized pruritus never before present, choking sensation in the throat, with increasing cough, dyspnea and wheezing, and severe paroxysmal pain, such as precordial, epigastric, or diaphragmatic, are the signs and symptoms by which one can be forewarned of anaphylactic shock and refuse further parenteral penicillin therapy. In the emergency of a shock reaction, the greatest immediate aid may be obtained with small doses, 0.12 to 0.2 cc., of epinephrine solution (1:1,000) given intradermally every two minutes until the patient is out of danger, usually 15 or 20 minutes, or beyond help. Although anaphylactic shock after penicillin injection in bronchial asthmatics is not common, one must be alert for it because of its severity when it does occur. Three illustrative cases in men between the ages of 49 and 59 are described.

Journal of Bone and Joint Surgery, Boston

35-A:805-1098 (Oct.) 1953. Partial Index

- "Unsolved" Fracture: Protest Against Defeatism. J. A. Dickson.—p. 805.
- *Diagnosis and Treatment of Giant-Cell Tumors of Bone. E. L. Compere.—p. 822.
- Chondromyxoid Fibroma of Bone: Report of Two Cases. D. C. Dahlin, A. H. Wells and E. D. Henderson.—p. 831.
- *Reticulum-Cell Sarcoma of Bone. J. C. Ivins and D. C. Dahlin.—p. 835.
- Luxatio Coxae Congenita: Follow-Up Study of 406 Cases of Closed Reduction. E. Platou.—p. 843.
- Fractures of Hip in Children: Treatment and Results. A. J. Ingram and B. Bachynski.—p. 867.
- Osteoid Osteoma in Hand. R. E. Carroll.—p. 888.
- Aseptic Necrosis of Bone in Caucasians with Chronic Hemolytic Anaemia Due to Combined Sickle Cell and Thalassemia Traits. R. S. Reich and N. J. Rosenberg.—p. 894.
- Direct Surgery in Segmental Arteriosclerosis. O. C. Julian, W. S. Dye Jr., W. J. Grove and J. S. Olwin.—p. 905.
- Congenital Arteriovenous Fistulae of Hand. R. M. Curtis.—p. 917.
- Nylon Membrane Arthroplasty of Knee in Chronic Arthritis. J. G. Kuhns, T. A. Potter, R. S. Hormell and W. A. Elliston.—p. 929.
- Age Incidence of Neural-Arch Defects in Alaskan Natives, Considered from Standpoint of Etiology. T. D. Stewart.—p. 937.
- Use of Staples and Bone-Chip Grafts for Internal Fixation in Foot-Stabilization Operations. R. H. Alldredge and D. C. Riordan.—p. 951.
- Patellar-Advancement Operation in Cerebral Palsy. W. M. Roberts and J. P. Adams.—p. 958.
- Arthropathy Due to Adjacent Inflammation. R. K. Lippmann.—p. 967.
- An Experimental Study of Use of Gelfoam to Fill Defects in Bone. F. C. Reynolds and L. T. Ford.—p. 980.
- Intra-Articular Hydrocortisone in Arthritis and Allied Conditions: Summary of Two Years' Clinical Experience. J. L. Hollander.—p. 983.
- Use of Compound F (Hydrocortone) in Operative and Non-Operative Conditions of Hand. L. D. Howard Jr., D. R. Pratt and S. Bunnell.—p. 994.

Giant Cell Tumors of Bone.—The occurrence of a large giant cell tumor of bone is reported in a 51-year-old woman and in a 36-year-old man. Roentgenograms showed a destructive, expansile lesion in the lateral condyle of the left femur in the woman and a tumor of the left ilium in the man. Roentgen irradiation was administered to both patients and resulted in extensive damage to skin, muscles, and other soft tissues sur-

rounding the tumors, with only partial destruction of the tumor. The tumors continued to grow in both patients and required much more extensive surgery than would have been adequate if it had been performed when the diagnosis was first made. Giant cell tumor of bone should be differentiated from all other lesions that also contain multinuclear giant cells, including solitary bone cyst, nonosteogenic fibroma, aneurysmal bone cyst, chondromyxoid fibroma of bone, benign chondroblastoma, and the "brown tumors" sometimes observed in hyperparathyroidism. The giant cell tumor of bone is clinically, anatomically, and cytologically a distinctive neoplasm. The pathologist who depends entirely on the microscopic examination and ignores the clinical history and roentgenographic examination will make many errors of diagnosis. Irradiation as a primary or total plan of treatment of giant cell tumors of bone is neither certain to cure nor free from danger. The larger giant cell tumors cannot be destroyed by irradiation without severe damage to the adjacent tissues. Most giant cell tumors may be adequately and safely treated by surgery followed, in some instances, by irradiation therapy.

Reticulum Cell Sarcoma of Bone.—In a survey of 2,000 specimens of primary tumor of bone preserved at the division of surgical pathology of the Mayo Clinic between 1905 and 1952, 49 were found to be reticulum cell sarcomas. Of 29 patients with solitary lesions in whom the condition was diagnosed in 1947 and earlier, 10 (35.7%) survived. This five year survival rate is somewhat better than the rate for most other primary malignant bone tumors, but is distinctly lower than the rate reported by Coley and his associates. Of the smaller group of 10 patients who presented multiple lesions on admission, 8 are known to be dead. Of these eight patients, three (37.5%) lived five or more years after the diagnosis was made. The survey reinforced the authors' conception that reticulum cell sarcoma is a firmly established entity. It is important to establish the diagnosis by adequate biopsy. Unlike most other primary malignant conditions of bone, reticulum cell sarcoma appears to be radiosensitive and, in one case in which the tumor disappeared, administration of Coley's toxins was the only treatment. At present, it appears that the prognosis in cases of reticulum cell sarcoma of bone is significantly better than that in most other primary malignant tumors of bone. Concerning treatment, the authors believe that amputation or radical excision followed by roentgen therapy locally and to regional lymph nodes offers the patient the best chance of survival; in recent months administration of Coley's toxins had been added to treatment.

Journal of Nutrition, Philadelphia

51:319-468 (Nov.) 1953. Partial Index

- Alanine, Cystine, Glycine and Serine Content of Meat. J. C. Alexander, C. W. Beckner and C. A. Elvehjem.—p. 319.
- *Influence of Dietary Fat and Carbohydrate on Growth and Longevity in Rats. C. E. French, R. H. Ingram, J. A. Uram and others.—p. 329.
- Variation of Growth in Successive Experiments with Folic Acid-Deficient Chicks and Influence of Aureomycin. G. M. Briggs, M. R. Spivey and L. O. Ortiz.—p. 355.
- P²² Distribution and Excretion in Rats Fed Vitamin D-Free and Low Phosphorus Diets. J. P. Feaster, R. L. Shirley, J. T. McCall and G. K. Davis.—p. 381.
- Nature of "Vitamin A-Like Factor" in Lard. S. F. Herb, R. W. Riemschneider, H. Kaunitz and C. A. Slanetz.—p. 393.
- Nitrogen Balance and Growth of Rat as Affected by Certain Fruits in Diet. A. M. Siliciano and E. S. Nasset.—p. 403.
- Concept of "Appetite Quotient" for Interpretation of Ad Libitum Feeding Experiments. K. J. Carpenter.—p. 435.

Influence of Dietary Fat on Growth and Longevity.—French and associates point out that groups of investigators have shown that high fat diets are superior to low fat diets for growth, efficiency of food utilization, and physical capacity. There is little information, however, regarding such a comparison on a life span basis. The possibility that high fat diets may have a detrimental effect on length of life and that they may promote the development of degenerative disease in the aged, although often expressed, has little experimental evidence for its support. Carlson and Roelzel reported in 1947 that rats fed an omnivorous diet containing 28% fat and 35% protein lived somewhat longer, on the average, than those receiving a vegetarian diet containing about 8% fat and 30%

protein. It is interesting to note, however, that only one rat lived more than 1,000 days on the omnivorous diet, while four in the vegetarian group exceeded this age at death. Life span was more uniformly prolonged by intermittent fasting in the case of the rats receiving the omnivorous diet. French and co-workers report experiments with three different diets carried out over a period of four years. For some of the details of their studies they refer to a report made in 1952. Male and female rats receiving a high fat diet (22.7% fat) grew as rapidly as those receiving a carbohydrate diet (3.4% fat), although they consumed 4.8 and 5.7% less total calories, respectively. No seasonal variation in food consumption occurred in any of the diets fed. The life span of male rats ingesting the high fat diet decreased markedly, and there was also a less pronounced but significant decrease in the longevity of the females. Increased efficiency of utilization of the diet was correlated with decrease in life span, but increased caloric intake per se was not so associated. The livers of males on the high fat diet contained significantly more fat than of males fed the carbohydrate diet. The histological data and the frequency of diseases and nothing that could be interpreted as a fat-induced cause of premature death.

Journal of Pediatrics, St. Louis

43:631-762 (Dec.) 1953

- *Boric Acid Poisoning: Report of 4 Cases and Review of 109 Cases from World Literature. R. B. Goldbloom and A. Goldbloom.—p. 631.
- *Transcutaneous Absorption of Boric Acid. J. Ducey and D. B. Williams.—p. 644.
- Perussis Immunization in Children with Convulsive Disorders. K. A. Melin.—p. 652.
- Sickle-Cell Anemia Crisis: Report on Seven Patients Treated with Priscolline. E. Smith, P. Rosenblatt and A. V. Bedo.—p. 655.
- Some Problems in Diagnosis and Treatment of Pulmonary Tuberculosis in Childhood. H.-K. Hsu and J. T. Szyplowski.—p. 661.
- Congenital Paroxysmal Tachycardia: Report of Case and Review of Literature. R. C. Anderson and F. H. Adams.—p. 668.
- Use of H.Bicon in Treatment of Epilepsy. S. Livingston.—p. 673.
- Acute Gastroenteritis: Review of 518 Cases Treated at Hospital for Sick Children During 1951 and 1952. M. G. Wolfish.—p. 675.
- Single Ventricle with Diminutive Outlet Chamber: Associated with Coarctation of Aorta and Other Cardiac Anomalies. R. P. Megevard, R. N. Paul and J. Parker.—p. 687.
- *Therapeutic Doses of Gamma Globulin in Treatment of Measles Encephalitis and Encephalomyelitis: II. Cerebrospinal Fluid and Serum Studies in Measles Encephalitis and Encephalomyelitis with Special Reference to Phosphorus, Cholesterol, and Magnesium. L. Odessky, A. V. Bedo, P. Rosenblatt and others.—p. 695.
- Use of Gardner-Murphy Pediatric Scalp-Vein Infusion Outfit. P. U. Abella.—p. 709.
- Generalized Cytomegalic Inclusion Disease: Report of Case and Review of Literature. J. C. Bacala and R. J. Burke.—p. 712.
- Treatment of Staphylococcal Pericarditis with Bacitracin. M. E. Freeman and G. F. Parker.—p. 720.
- Primary Cardiac Tumors in Infancy. L. A. Longino and I. A. Meeker Jr.—p. 724.
- Current Summary of Strabismus in Children. E. Regnier.—p. 732.

Boric Acid Poisoning.—Four cases of boric acid poisoning are described in infants between the ages of 13 and 20 days. In all four, poisoning resulted from topical application of boric acid preparations to the buttocks. In one patient a popular brand of baby powder containing the active ingredients talc and boric acid was the source of the toxicity. In 109 cases of boric acid poisoning (105 collected from the literature and the authors' 4 cases) the over-all mortality was 55%, and the mortality in patients less than one year of age was 70.2%. Data obtained from analysis with respect to age, route of intoxication, signs and symptoms, necropsy findings, and chemical analyses of body organs for boric acid were correlated with the results of experimental boric acid intoxication. The high degree of absorption of boric acid from broken skin surfaces and mucous membranes is emphasized. Absorption of boric acid through intact adult skin could not be demonstrated, confirming the findings of Pfeiffer and associates in this regard. The particular sensitivity of young infants to the toxic effects of boric acid is noted, and the importance of recognizing milder cases of poisoning in this age group is stressed. The common clinical findings consist of erythematous skin eruptions, followed by desquamation, diarrhea and vomiting, and evidence of meningeal irritation. The presence of boric acid in the urine and spinal fluid is readily confirmed by use of the turmeric-paper

test. The authors recommend that, since boric acid is a potentially dangerous drug, possessing only mild bacteriostatic activity, its use in any form of medical therapy, particularly as applied to infants and children, be discontinued.

Transcutaneous Absorption of Boric Acid.—Transcutaneous absorption of boric acid is described in three infants between the ages of 27 days and 4 months treated for diaper rash with a commercial borated talc followed by boric acid powder for seven days and boric acid ointment applied for one week followed by bathing in boric acid solution and dusting of the skin with boric acid crystals intermittently for two weeks, respectively. One child died. The diagnoses were made on clinical grounds and corroborated by laboratory analysis of blood, urine and cerebrospinal fluid. In one of the patients the level of boric acid in the blood was determined by chemical analysis to be 5 mg. per 100 cc. of blood. The total amount of boric acid in the circulation would thus be 17.5 mg., assuming the blood volume to be approximately 350 cc. As this infant was dying, it would appear that this figure is close to the fatal blood level. It was calculated that owing to the transcutaneous absorption of boric acid from solution resulting from 5% borated talc in contact with the infant's urine, the lethal amount of 17.5 mg. may be reached in only five days (of 10 daily applications of the borated dusting powder during diaper changes) over the relatively small excoriated area of 100 square centimeters if only 1% of the available boric acid accumulates in the blood stream. In view of the insidious nature of boric acid poisoning and the facility of its transcutaneous absorption it seems likely that further morbidity will result unless its use is discontinued in favor of other more efficient and safe antibacterial agents.

Cerebrospinal Fluid and Serum Studies in Measles Encephalitis.—During the 1952 epidemic of measles, 41 patients with measles encephalitis and encephalomyelitis were successfully treated with large doses of gamma globulin and adjunctive therapy in the acute phase. The results of this therapy were reported in a previous paper. The adjunctive therapy included an adequate supply of the metabolites phosphorus, cholesterol, and magnesium, which are not usually considered in measles encephalitis and encephalomyelitis; such a supply is essential during the period when catabolism is reverting to normal metabolism and when destroyed central nervous system tissue is being repaired. This type of adjunctive therapy presented the application of the results of the authors' studies of the cerebrospinal fluid and serum in the 41 patients in the acute phase of measles and encephalomyelitis. Abnormal inorganic phosphorus values were revealed both in the cerebrospinal fluids and serums of these patients. A greatly increased level of inorganic phosphorus in the cerebrospinal fluid was observed in 8 out of 12 patients, while the serum showed hypophosphatemia in 9 out of 11 patients resulting in an abnormal ratio of cerebrospinal fluid inorganic phosphorus to serum inorganic phosphorus. The inorganic phosphorus values of the cerebrospinal fluid ranged from 1.7 to 4.1 mg. per 100 cc. The mean was 2.02 mg. per 100 cc., with a standard error of the mean of ± 0.11 . When compared to a series of control patients previously reported, this increase was found to be statistically significant. In addition, abnormally high total cholesterol values were found in the cerebrospinal fluid of three patients in the acute phase of the infection. These observations can be correlated with the pathological findings in measles encephalitis and encephalomyelitis. Microscopic examination revealed diffuse perivascular demyelination (destruction of phosphorus-containing tissue), and varying quantities of fat both in the phagocytic glia cells and in the surrounding tissues were almost always present. The role of magnesium in viral infections with complications in the central nervous system and its use in therapy was assessed. Also an unusually high percentage (94%) of the cerebrospinal fluids from the authors' patients with measles encephalitis and encephalomyelitis revealed pleocytosis, elevated total protein, or both. The characteristic leukocyte count in patients with measles encephalitis and encephalomyelitis is that of an acute infection with an elevation of the leukocyte count with a tendency toward a relative granulocytosis. Where the white blood cell count remains normal, a relative

lymphocytosis predominates. The serum constituents, glucose, total protein, albumin-globulin ratio, chlorides, urea nitrogen, sodium, potassium, calcium, and cholesterol, were, except for a few instances, within normal limits during the acute stage of the disease. Slight acidosis was observed in most patients on admission.

J. Pharmacology & Exper. Therap., Baltimore

109:367-474 (Dec.) 1953. Partial Index

- Effects of Nutritional Deficiency on Response to Thiopental. H. A. Levy, J. R. DiPalma and C. Alper.—p. 377.
 Acute and Chronic Toxicity of Butazolidin. L. W. Hazleton, T. W. Tusing and E. G. Holland.—p. 387.
 Effectiveness of Oral Analgesics (Morphine, Codeine, Acetylsalicylic Acid) and Problem of Placebo "Reactors" and "Non-Reactors." H. K. Beecher, A. S. Keats, F. Mosteller and L. Lasagna.—p. 393.
 Intracellular Distribution of Histamine. J. H. Copenhaver Jr., M. E. Nagler and A. Goth.—p. 401.
 Actions and Addiction Liability of Dithienylbutenylamines in Man. H. Isbell and H. F. Fraser.—p. 417.
 Pharmacologic Observations on Two Quaternary Ammonium Germicides. J. K. Finnegan, P. S. Larson, R. B. Smith Jr. and others.—p. 422.
 Metabolism of Ethyl Alcohol. E. K. Marshall Jr. and W. F. Friiz.—p. 431.
 Effect of Ethylenediamine Component of Aminophylline on Duration of Reversal of Cardiac Failure. H. F. Hardman, A. C. Yard and M. B. Chenoweth.—p. 461.

Journal of School Health, Buffalo, N. Y.

23:293-318 (Dec.) 1953

- *Tuberculosis Case Finding in Schools. W. E. Ayling.—p. 293.
 Certification of Schools on Basis of Tuberculosis Control Work in Progress. E. A. Meyerding, S. A. Slater and L. S. Jordan.—p. 301.

Tuberculosis Case Finding in Schools.—Ayling, health director of the public schools in Syracuse, N. Y., questions the desirability of tuberculosis case finding programs in the schools. He feels that it is a mistake to look for tuberculosis only in persons over age 15. Of the 45 cases of active tuberculosis found in the last six years by the author's staff or other agencies screening school children 36, or 80%, were in children 15 or under. Furthermore, tuberculosis is still the leading cause of death from disease in the age group 15 to 35. Undoubtedly many of the deaths are the result of tuberculosis that started when the persons were less than 15 years old. Ayling shows that there is a trend back to the use of the tuberculin test for case finding. He quotes among others the spokesman for the American Trudeau Society as saying that, "In areas with low rates of tuberculosis infection tuberculin testing with x-ray examination of positive reactors is of greater practical value than mass surveys." The author presents arguments against the use of BCG and points out that in 1949, complying with a request from the local health department, BCG was given to all children who had negative tuberculin reactions in two schools that were in an area where the incidence of tuberculous infection among adults was higher than in any other part of the city. It was thought that the BCG would give some protection to these pupils. It was necessary to get parental consents for (1) a tuberculin test, (2) a chest film, (3) administration of BCG, and (4) another tuberculin test two months later to determine "takes." A great deal of time and effort was involved in this program. BCG was given to 834 pupils who had had negative reactions and normal roentgenograms. In the tuberculin test given two months later 690 had positive reactions. One year later 524 were retested and 90 had reverted to negativity. Each year since then it has been found that more and more of these pupils have negative reactions, that is, any protection they may have had did not persist very long. One could never be sure that a child who had been given BCG was not acquiring active disease except by making roentgenograms of all these with positive reactions each year. In one boy who had been given BCG active tuberculosis did develop. Now it is realized that it was a mistake to give BCG to these school children mainly because it upset the regular case finding program. It also was a time consuming task and a disagreeable one as far as the children were concerned. The author concludes that a tuberculosis case finding program using the tuberculin test is valuable.

Journal of the Student A. M. A., Chicago

2:1-86 (Nov.) 1953. Partial Index

- Carcinoma In Situ. R. J. Weaver.—p. 21.
 Tumors of Cerebello-Pontine Angle. M. O. Goldzband.—p. 23.
 Psychiatry and Medicine. K. Menninger.—p. 28.
 The Doctor Draft and You. C. J. Stetler, H. W. Glattly and P. O. Armstrong.—p. 43.

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- Treatment of Leukemia. R. M. Bird, P. E. Russo and L. P. Ellef.—p. 21.
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 Medical Education for National Defense. M. A. Casberg.—p. 37.

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- Diabetic Acidosis and Coma. J. A. Seaholm.—p. 21.
 Portal Hypertension—Review. P. Dreizen.—p. 35.
 Why Choose an Army Internship? B. H. Berrey.—p. 41.
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 Opportunities in Nonurban Practice. P. Williamson.—p. 58.

Journal of Thoracic Surgery, St. Louis

26:551-664 (Dec.) 1953

- *Experimental Closure of Atrial Septal Defects. H. B. Shumacker Jr., T. C. Moore and H. King.—p. 551.
 Surgical Treatment of Mitral Insufficiency: An Experimental Study. M. G. Carter, J. M. Gould and B. F. Mann Jr.—p. 574.
 *Pulmonary Valvuloplasty Under Direct Vision Using Mechanical Heart for Complete By-Pass of Right Heart in Patient with Congenital Pulmonary Stenosis. F. D. Dodrill, E. Hill, R. A. Gerisch and A. Johnson.—p. 584.
 Production and Repair of Interatrial Septal Defects Under Direct Vision with Assistance of an Extracorporeal Pump-Oxygenator Circuit. B. J. Miller, J. H. Gibbon Jr., V. F. Greco and others.—p. 598.
 An Oxygenator-Pump for Use in Total By-Pass of Heart and Lungs. J. A. Helmsworth, L. C. Clark Jr., S. Kaplan and R. T. Sherman.—p. 617.
 Variations in Bronchovascular Patterns of Left Lower Lobe of 50 Lungs. M. Pitel and E. A. Boyden.—p. 633.

Experimental Closure of Atrial Septal Defects.—An ideal method for the surgical closure of atrial septal defects in human patients would be applicable to defects of all types and sizes, would give reasonable assurance of complete closure of the defect, preferably with autogenous tissue, and would be capable of being accomplished in a dry field without loss of blood, without interference with cardiac function, without the necessity of using anticoagulants, and without the hazard of air embolism or intracardiac thrombosis. Various methods of closure were used in repairing large atrial septal defects created in healthy dogs either immediately before the closure or at some time previous to it. An autogenous graft was applied directly to the defect through the opened right atrium during temporary occlusion of the inferior and superior venae cavae and the azygos vein. Speed is imperative in this procedure, because survival can be assured only if the periods of occlusion are brief. The safety of the operation, which is considered too hazardous to be used in human patients, can be increased by modifications making it possible to fix the graft in place during a single brief period of venous obstruction. Insertion of the graft through a rubber-capped glass cylinder introduced into the base of the auricular appendage proved to be safe and free from the danger of air embolism or intracardiac thrombosis. The distance of the cylinder from the defect, however, made it difficult to place the sutures accurately. Improvements designed to overcome this and other difficulties are soon to be tested. Use of an invaginated pericardial pocket gave satisfactory results and seemed to fulfill the requirements of the ideal operation for use in human beings. Experience with one patient, however, showed that the pericardial pocket, when placed over a large defect, may be resorbed and literally melt away. Experiments now under way in which the technique is the same but an inert plastic material is used for the pocket will, if successful, provide a satisfactory method for the closure of atrial septal defects in human patients.

Pulmonary Valvuloplasty Using Mechanical Heart.—A mechanical heart was successfully used to bypass the right side of the heart completely during the operative correction of congenital pulmonary stenosis in a 16-year-old boy with longstanding exertional dyspnea. The left side of the heart and

the lungs continued to perform their functions, but the main pulmonary artery was clamped off for 25 minutes while the pulmonary valve was exposed and enlarged under direct vision. The blood flow through the mechanical heart was 4.5 liters per minute. The procedure was well tolerated, and the patient shows marked clinical improvement. He no longer complains of dyspnea and is working as a freight handler, although against advice. Partial bypassing of the right side of the heart with a blood flow of one liter per minute through a mechanical device was reported in 1952, but this is believed to be the first time the right side of the heart has been completely bypassed with success in a patient. The coexistence of septal defects would contraindicate this procedure in patients with pulmonary stenosis, but there are other conditions, such as disease of the tricuspid valves, in which it may prove useful. Blind valvulotomy has benefited many patients, but further progress in cardiac surgery will probably be based on exposure of the anatomic structures.

Kentucky State Medical Assn. Journal, Bowling Green

51:519-562 (Dec.) 1953

- Evolution of Transurethral Prostatic Surgery. D. E. Scott.—p. 519.
 Legislative Program and Activities of American Medical Association. C. J. Stetler.—p. 524.
 Medical Treatment of Hypertension. G. W. Pedigo Jr.—p. 529.
 Changing Pattern in Obstetric Practice. H. C. Hesseltine.—p. 534.
 Radioactive Iodine I-131 and General Practitioner. R. W. Willmott and T. G. Hobbs.—p. 541.

Medicine, Baltimore

32:389-464 (Dec.) 1953

- Fetal Zone of Adrenal Gland: Its Developmental Course, Comparative Anatomy, and Possible Physiologic Functions. J. T. Lanman.—p. 389.
 Acute Methyl Alcohol Poisoning: Review Based on Experiences in Outbreak of 323 Cases. I. L. Bennett Jr., F. H. Cary, G. L. Mitchell Jr. and M. N. Cooper.—p. 431.

Metabolism, New York

2:485-578 (Nov.) 1953

- Insulin (Hypoglycemic) Reactions in Diabetic Patients. J. I. Goodman.—p. 485.
 Studies on Hypoglycemia Responsiveness. S. S. Lazarus and B. W. Volk.—p. 500.
 Comparison of Effect of 11 β -Hydroxyprogesterone and of 11 β , 17 α -Dihydroxyprogesterone upon Glycosuria of Partially Depancreatized Rat. D. J. Ingle, D. F. Beary and A. Purnalis.—p. 510.
 Selective Destruction of Pancreatic Alpha Cells by Cobaltous Chloride in Dog: Physiologic Implications. S. S. Lazarus, M. G. Goldner and B. W. Volk.—p. 513.
 Electrolyte Studies in Nutritional Edema. S. G. Srikanthia, P. S. Venkatachalam and C. Gopalan.—p. 521.
 *Influence of Potassium Salts on Efficiency of Parenteral Protein Alimentation in Surgical Patient. P. M. Frost and J. L. Smith.—p. 529.
 Metabolic Changes in Rat Diaphragm During Heat Regulation, as Thyroxine Effect. E. Wertheimer and V. Bentor.—p. 536.
 Effect of Variation in Thyroid Function on Pressor Response to Norepinephrine in Man. R. E. Schneekloth, G. S. Kurland and A. S. Freedberg.—p. 546.
 Intestinal Absorption of Vitamin E Preparations in Patient with Muscular Dystrophy. H. Rosenkrantz, A. T. Milhorat and M. Farber.—p. 556.
 Influence of Malnutrition on Pancreas: Report of Case Following Small Gut Resection. W. P. U. Jackson and G. C. Linder.—p. 562.

Influence of Potassium Salts on Parenteral Protein Alimentation.—Although potassium-nitrogen relationship in animals has been noted by several investigators, it was not until recently that Cannon and associates demonstrated the need for potassium salts in effective synthesis of tissue-protein in rats. The study presented here describes the enhancing effect of potassium salts on nitrogen utilization in human beings when adequate amounts of potassium are infused concurrently with high caloric protein hydrolysate. Studies were conducted on 10 men, patients of the Surgical Service, Wadsworth Hospital, Veterans Administration Center, Los Angeles, Calif. They were given no food by mouth for the experimental period. Electrolyte intake was recorded each day. Only the data on sodium, potassium, and nitrogen are considered here. Six different solutions were used. They were infused in combinations in amounts up to 4,000 cc. per day. The patients are divided

into four groups, according to the number of days treated and the solutions given. Evaluating observations on one patient from each group the authors stress the following points. 1. The efficiency of intravenous protein therapy is improved by the addition of potassium, since such a step replaces losses of electrolyte that occur with the destruction of cellular protoplasm during the fasting state. 2. There seems to be an intimate correlation between the rate of infusion, the presence of high caloric protein hydrolysate, and the amount of potassium required to replace these losses. 3. There is evidence that the amount of potassium needed per gram of nitrogen infused is intimately related to the improved retention and utilization of amino acids. This value has been found to exceed 5 mEq. per gram of nitrogen infused.

Military Surgeon, Washington, D. C.

113:443-518 (Dec.) 1953

- Surgery in Division Clearing Stations. L. H. Ginn Jr. and H. H. Ziperman.—p. 443.
 Management of Wounds of Chest and Abdomen Associated with Penetrating Brain Wounds. F. B. Berry.—p. 448.
 Private Industry's Views of Industrial Health. R. C. Page.—p. 453.
 *Arachnidism: Discussion and Review of Literature. E. T. Odom and W. Capel.—p. 460.
 Interrelated Laboratory Activities of Army Medical Service and Military Police Corps. C. H. Goddard.—p. 466.
 Protein Bound Iodine Determination in Military Hospital. W. J. Reals, J. A. Jarman and R. T. Beattie.—p. 478.
 Plastic Transparent Lid to Improve Use of Nail Clippers. L. Wirth.—p. 483.

Arachnidism.—The black widow spider, *Latrodectus mactans*, has been reported in every state in this country except Vermont. It is especially prevalent in the southern states, the Ohio Valley, and the western coastal region. The name black widow originated from the fact that, after fertilization, the female kills the male. The adult female spider inflicts bites on humans. On the ventral surface of its abdomen is a characteristic hourglass (T-marking) red spot, and for this reason the black widow is known variously as hourglass, shoe-button, and T-spider. The venom of *Latrodectus mactans* is 15 times as potent as that of the rattlesnake. It is a thick translucent, oily, lemon-yellow-colored fluid, acid in reaction, from which a hemolysin and arachnolysin have been isolated. It is neither an alkaloid nor a glucoside but a toxalbumin. In a typical case of arachnidism, the history of having felt a bite or sting may be recalled only on questioning. The initial pain of the sting may be felt for only a few seconds or minutes. The onset of the next phase from 15 minutes to 2 hours later is heralded by the return of pain that spreads proximally and/or distally, following the lymphatic drainage. The predominant symptoms are excruciating and agonizing cramping pains of the abdomen; these equal or exceed those of ruptured peptic ulcer, kidney colic, acute appendicitis, or coronary occlusion. The muscle pain usually will involve almost all skeletal muscles. Other symptoms of arachnidism include convulsions, paralysis, urinary retention, shock, delirium, cyanosis, nausea, vomiting, dyspnea, anxiety, insomnia, and cold sweats. Observations by the authors in two cases of arachnidism are compared with reports by others. The results of the 80 or more treatments of arachnidism have been largely unsatisfactory. The best and only specific treatment is the antivenin *Latrodectus mactans*, which has been available for the past 12 years. This is an immune serum that has been prepared by concentrating and drying the serum of horses hyperimmunized with increasing doses of black widow spider venom. The dried antivenin is packaged with a 2.5 cc. vial of distilled water for restoring the serum and a 1 cc. vial of normal horse serum (diluted 1:10) as test and desensitizing material. It is imperative that instructions on the package be followed carefully, particularly in regard to the intradermal and conjunctival tests for hypersensitivity to horse serum. The usual dosage is 2.5 cc. of the restored serum, given deeply intramuscularly. A number of patients will require an additional 2.5 cc., which may be given one or two hours later.

Neurology, Minneapolis

3:871-952 (Dec.) 1953

- Revascularization of Brain in Mental Defectives. G. A. Jervis, F. F. McAllister, B. M. Hogg and R. A. Deterling Jr.—p. 871.
 *Results of Transorbital Lobotomy in 400 State Hospital Patients. W. W. Wilson, A. R. Pittman, R. E. Bennett and R. S. Garber.—p. 879.
 Cerebral Lipiodol Granuloma. A. Morello and I. S. Cooper.—p. 886.
 Effect of Themisone and Phenurone on Electrically-Induced Seizures in Salamander. J. J. Peters and A. R. Vonderahe.—p. 890.
 Experimental Intraventricular and Intracerebral Injection of Polymyxin B in the Cat. P. Teng.—p. 896.
 Neurocutaneous Syndromes in M Kindred: Case of Simultaneous Occurrence of Tuberosus Sclerosis and Neurofibromatosis. W. J. Schull and F. W. Crowe.—p. 904.
 Adie's Syndrome and Adler-Scheie Mecholy Test. B. E. Sproffkin.—p. 910.
 Cerebrospinal Fluid Pressure Adjustment to Change in Body Position. J. Fay and P. Settlage.—p. 916.
 Tumors Arising Within Spinal Canal in Children. A. T. Ross and O. T. Bailey.—p. 922.

Transorbital Lobotomy.—In a previous report the results of transorbital lobotomy in 200 state hospital patients were presented. This paper reviews findings in 400 patients. On the basis of interviews by several of the authors and reports from the ward nurses, the cases have been placed in one of five groups, out of the hospital, good improvement, fair improvement, no improvement, and operative death. There were 8 (2%) surgical deaths among the 400 patients. All of these patients had been considered hopeless and had failed to respond to all other types of therapy, including insulin and electroshock. The average duration of illness for the group is almost 11 years, and most of the patients had previously been confined to small seclusion rooms for years. The operation is quite simple and is well suited for use in a large state hospital. The operations are performed on the wards. A team of nurses and attendants can easily be trained in the course of two to four operations. Four operations take but 15 minutes. The patients are treated postoperatively as if they had had simple electroshock therapy. Morbidity is very low, and only a small percentage of patients are incontinent for a week or so. There have been two or three instances of transient hemiparesis. There was marked improvement in approximately one-half of the cases and some improvement in another 25% of chronically disturbed patients. It is urged that this type of operation be considered for all chronically disturbed patients.

Northwest Medicine, Seattle

52:903-994 (Nov.) 1953

- Treatment of Infectious Mononucleosis with Corticotropin. C. E. Bender and B. C. Houghton.—p. 922.
 Mass Treatment of Fractures. J. B. Davis.—p. 926.
 Office Diagnosis and Operable Congenital Heart Lesions. R. Tidwell, R. Rushmer and R. Polley.—p. 927.
 First Aid During Catastrophe. E. S. Danishek.—p. 928.
 Carcinoid of Rectum. A. B. Baker and T. E. Ludden.—p. 930.
 Mesenteric Hernia Complicating Pregnancy. L. G. Steck.—p. 931.
 Coarctation of Aorta. W. B. Hutchinson.—p. 932.
 Tuberculous Peritonitis Simulating Acute Appendicitis. H. G. Storrs.—p. 935.
 *Talc Poudrage Treatment of Recurrent and Chronic Spontaneous Pneumothorax. F. R. Smith.—p. 937.

52:999-1094 (Dec.) 1953

- III-Advised Pelvic Surgery. K. H. Martzloff.—p. 1017.
 True Hermaphroditism. F. R. Smith.—p. 1022.
 Radical Prostatectomy for Nonmalignant Lesions. R. G. Wyrens.—p. 1026.
 Combined Vein Ligation and Skin Grafting of Varicose Ulcers. A. E. Sachs.—p. 1028.
 Keratoses and Carcinoma. H. C. Roys.—p. 1030.
 Office Diagnosis of Operable Congenital Heart Lesions: Constricting Vascular Ring. R. Tidwell, R. Rushmer and R. Polley.—p. 1032.

Talc for Treatment of Recurrent Spontaneous Pneumothorax.—Recurrent and chronic spontaneous pneumothorax are dangerous. Prevention of further episodes in a person who has had several pneumothoraces is vital. The author presents observations on nine such patients who were treated with talc poudrage, both with and without concomitant resection. He shows that insufflation of sterile talc through a thoracoscope will glue the

visceral and parietal pleural surfaces together to prevent further pneumothoraces. The histories of five of the nine patients in whom this treatment was used are presented. Good results were obtained in eight of the nine.

Oral Surgery, Oral Medicine & Oral Path., St. Louis

6:1261-1372 (Nov.) 1953. Partial Index

- Treatment of Multiple Facial Fractures: Report of Case. D. E. Brannin and C. L. Wilkinson.—p. 1261.
 Chondroma of Tongue. K. W. Bruce and J. R. McDonald.—p. 1281.
 *Herpetic Stomatitis: Aid in Early Diagnosis of Infectious Mononucleosis. I. G. Nathanson and G. E. Morin.—p. 1284.
 Fatal Agranulocytosis Due to Tridione Therapy. L. M. Sreebny and E. A. McGrew.—p. 1301.

Herpetic Stomatitis in Early Diagnosis of Infectious Mononucleosis.—Nathanson and Morin define both acute herpetic stomatitis and infectious mononucleosis and say that both have been attributed to a virus. They present observations on 52 cases of herpetic stomatitis, which were associated with a generalized lymphadenopathy leading to diagnosis of infectious mononucleosis. In 80% of the cases, the oral lesions preceded positive blood smear and agglutination tests. Thirty-seven patients sought dental consultation first. The presence of herpetic stomatitis in association with generalized lymphadenopathy is, in the opinion of these authors, consistent with the early diagnosis of infectious mononucleosis. A blood smear consistent with a diagnosis of infectious mononucleosis was present in all patients from the 5th to 20th day after presentation to the clinic. The oral lesions usually disappeared around the 10th to 15th day, although the blood smear may remain positive and the lymphadenopathy may persist for four weeks or longer. Treatment was directed to controlling the oral complaint. In addition to antipyretics and antibiotics for fever and infection, all patients were given vitamin B complex. The intramuscular and oral routes of administration were used alternately. In all cases the oral lesions improved, and the burning sensation began to disappear within 36 hours after start of therapy. The herpetic lesions began to regress within 48 hours, and tender gingivae showed distinct improvement within the same time interval. The response appeared to be better with the oral administration than with the intramuscular route. Administration of vitamins did not shorten the course of infectious mononucleosis.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

84:259-516 (Nov.) 1953. Partial Index

- Effect of Antibiotic Dosage on Mortality from Whole Body X-Irradiation. G. E. Gustafson and S. Koletsky.—p. 266.
 Interval Between Inoculations as Factor in Interference Between Neurotropic Viruses. C. E. Duffy and P. N. Morgan.—p. 298.
 Preliminary Observations on New Derivative of Isoniazid (Ro 2-4969). F. C. Larson and H. A. Dickie.—p. 301.
 Influence of Low Tryptophan Diets Containing 6-Methyltryptophan on Oral Infection with Poliomyelitis Virus. A. F. Rasmussen Jr., R. W. Weaver, C. A. Elvehjem and P. F. Clark.—p. 306.
 Beneficial Effects of Cortisone on Survival of Rats Infected with D. Pneumoniae. H. J. Robinson, R. C. Mason and A. L. Smith.—p. 312.
 Close-Packed Array of Virus-Like Particles Within Cells of Human Skin Papilloma. H. Bunting.—p. 327.
 Augmentation of Human Chorionic Gonadotrophin by Plasma and Other Non-Hormonal Substances. W. O. Maddock, I. Tokuyama and R. B. Leach.—p. 352.
 Effects of Electroshock Therapy on Blood Lactic Acid and Pyruvic Acid. S. Eiduson, G. R. Kingsley, R. B. Portis and R. D. Wallace.—p. 364.
 Comparison of Hypotensive and Emetic Dosages of Cryptenamine and Other Veratrum Extracts in Humans. F. A. Finnerty Jr.—p. 379.
 Effect of Inositol Feeding on Inositol Phosphatides and Other Lipids of Human Blood Plasma. J. M. McKibbin and D. W. Brewer.—p. 386.
 *Formation, Flow, and Reabsorption of Cerebrospinal Fluid in Man. W. H. Sweet and H. B. Locksley.—p. 397.
 Resistance in Leukemic Cells to an Adenine Antagonist, 6-Mercaptopurine. L. W. Law.—p. 409.
 Role of Bile Salts in Activity of Cholesterol Esterase. L. Swell, H. Field Jr. and C. R. Treadwell.—p. 417.
 Reduction of Hyperkalemia by Circulating Blood Through Cation Exchange Resin. B. J. Kessler, J. B. Liebler, J. I. Abrahams and M. Sass.—p. 508.

Cerebrospinal Fluid in Man.—Sweet and Locksley point out that the textbooks teach that the cerebrospinal fluid is formed by the choroid plexuses of the cerebral ventricles whence it flows into the spinal and epicerebral subarachnoid spaces.

Here it is considered free to circulate until it is finally reabsorbed, presumably largely or wholly at the arachnoid villi. On the basis of data obtained from multiple simultaneous isotopic tracer studies in man, employing various combinations of Na^{24} , K^{42} , Cl^{38} , Br^{80} , P^{32} , HTO , D_2O , and radioiodinated human serum albumin, the authors were led to a unified theory of formation, flow, and reabsorption of the cerebrospinal fluid that is at variance with the currently held concepts. After a large number of tracer studies had been done in patients with normal cerebrospinal fluid systems, it became evident that a precise compartmental analysis of the data involved equations of a fair degree of complexity, and more variables than could be adequately measured, the most troublesome being the rate of flow between compartments. To limit the variables and to test the validity of a number of possible compartmental models of cerebrospinal fluid physiology, they sought patients in whom it would be possible to isolate the main ventricular compartments from the subarachnoid space. Two patients were found in whom complete blockage of cerebrospinal fluid outflow from the large lateral ventricles had resulted from tumor encroachment on the third ventricle. A normal state of cerebrospinal fluid pressure and dynamics was restored by means of a small plastic tube placed surgically to bypass the block and restore the flow of cerebrospinal fluid from the lateral ventricles to the basal cistern of the subarachnoid space. The authors stress the following points: 1. Water and electrolytes enter the cerebrospinal fluid rapidly both in the ventricles and throughout the subarachnoid space. The formation of the fluid is thus not an exclusive prerogative of the choroid plexus. 2. Water and electrolytes flow directly into the blood from both the ventricles and the subarachnoid space at roughly similar rates. 3. Cerebrospinal fluid does not suddenly come into being fully formed at any point with all its constituents in their proper ratios, but each constituent exchanges with blood at its own characteristic rate. 4. In contrast to water and electrolytes, protein is absorbed largely from the subarachnoid space, presumably from the arachnoid villi, which seem to function in the cerebrospinal fluid system analogous to the lymphatics of the general circulation. 5. The site and rate of protein reabsorption is an important determinant of the direction and rate of cerebrospinal fluid flow. 6. The net amount of cerebrospinal fluid elaborated per day in the ventricles, over and above the large and equivalent volume exchanged, is small and is of the order of 10 to 20 cc. or less, per day in man.

Psychiatry, Washington, D. C.

16:313-418 (Nov.) 1953. Partial Index

- Study of Incidence of Mental Disorder in Chinese and Other Cultures. Tsung-yi Lin.—p. 313.
 Low Morale and Mutual Withdrawal on a Mental Hospital Ward. M. S. Schwartz and G. T. Will.—p. 337.
 Written Communication in Psychotherapy. D. J. Farber.—p. 365.

Public Health Reports, Washington, D. C.

68:1141-1264 (Dec.) 1953. Partial Index

- Occurrence of Influenza in the United States, 1952-53. D. J. Davis and C. C. Dauer.—p. 1141.
 New Orientation in Teaching of Preventive Medicine. W. P. Dearing.—p. 1147.
 Cocksackie Virus Antibody and Incidence of Minor Illness During Summer. M. Walton and J. L. Melnick.—p. 1167.
 *Isolation of Cocksackie Virus During Summer Outbreak of Acute Minor Illness. J. L. Melnick, M. Walton and I. L. Myers.—p. 1178.
 Research Preferences and Activities of Public Health Service Officers. S. H. Newman and M. A. Howell.—p. 1183.
 Agenda for Critical Exploration of Current Problems in Medical Care. E. M. Bluestone.—p. 1225.

Isolation of Cocksackie Virus During Summer Outbreak of Acute Minor Illness.—The observations described were made as a part of a study of the epidemiology of poliomyelitis that is being conducted in Charleston, W. Va. In the last week of July, 1951, an unusual incidence of unclassified acute minor illness was noted in a block in one of the study areas in which households are regularly visited by interviewers. The block is adjacent to one from which a case of poliomyelitis had been reported earlier in the week. The situation was investigated to determine whether or not the two observations were related.

Stools and paired serum samples were collected and were frozen at about -20°C soon after collection and held at this temperature until tested. Neutralization tests were carried out on serums. The poliomyelitis patient was a boy, aged 6, who became ill with fever, drowsiness, nausea, and epigastric pain. A stiff neck developed the following day. A diagnosis of poliomyelitis was made two days later on the basis of increased lymphocytes in the spinal fluid, stiff neck, and hamstring muscle spasm. Weakness of abdominal muscles was noted on the following day and persisted for six weeks. The 1-year-old brother of this boy became ill three days later with fever and sore throat, and the pediatrician found small vesicles in the throat (herpangina). Several days later the mother had a sore throat. Six of 10 playmates (all less than 10 years old) of the 6-year-old boy with poliomyelitis also had sore throat and fever. Some had a syndrome compatible with herpangina. Both poliomyelitis virus and type A2 coxsackie virus were isolated from a fecal specimen from the boy with poliomyelitis, and a rise in neutralizing antibody titer to type A2 coxsackie virus was demonstrated. Stool specimens from household and playmate contacts with symptoms were found to contain type A2 coxsackie virus but not poliomyelitis virus. Adult members of the household possessed neutralizing antibodies to type A2 coxsackie virus, but none were found to be excreting virus.

Quarterly J. Studies on Alcohol, New Haven, Conn.

14:525-706 (Dec.) 1953. Partial Index

- *Alcohol, Beer and Wine as Foods. C. P. Richter.—p. 525.
- Effect of Repeated Alcohol Administration on Adrenal Ascorbic Acid and on Development of Scurvy in Guinea Pig. J. C. Forbes and G. M. Duncan.—p. 540.
- Investigations on Disulfiram-Alcohol Reaction: Clinical Observations. K. Raby.—p. 545.
- *Hepatic Abnormalities in Alcoholics with Delirium Tremens. C. M. Leevy, I. Patrylo and W. Doody.—p. 568.
- Finding Problem Drinker: Case Studies in Industrial Health Problem. R. C. Page and E. R. Hawkins.—p. 586.
- Attitudes of Parents of Alcoholics, Moderate Drinkers and Nondrinkers Toward Drinking. J. K. Jackson and R. Connor.—p. 596.
- Driving Under Influence of Alcohol: Role of Chemical Tests in Appealed Cases. D. Lester, L. A. Greenberg and G. R. Tiernan.—p. 614.
- Interpretation of Medical and Psychiatric Approaches in Treatment of Alcoholism. S. Vogel.—p. 620.
- Wives of Alcoholics: Four Types Observed in Family Service Agency. T. Whalen.—p. 632.

Alcohol, Beer, and Wine as Foods.—According to Richter many Americans believe that alcohol needs food to dilute or absorb it and that the greater the amounts of imbibed alcohol the greater are the amounts of food that must be ingested. They regard alcohol as a drug and a "stimulant" that does not contribute directly to their diet. They do not consider that an ounce of alcohol represents almost twice as many calories as an ounce of sugar; nor have they considered the possibility that calories from imbibed alcohol added to those from ingested foods may supply far more energy than a person needs. Much of the experimental knowledge concerning the dietary needs of man is derived from observations on the Norway rat that has the ability to make beneficial dietary selections from wide assortments of foodstuffs. Its appetite has been amply demonstrated to be a reliable guide to its needs. The author described three series of experiments on rats. In one series the fluid consumption of rats was restricted to either an 8, 16 or 24% solution of alcohol for 265 days. The animals reduced their food intake in proportion to the calories obtained from alcohol. During this period they showed no signs of deficiency and gained weight at the same rate as before the experiment. In a second series of rats, the fluid intake was restricted to a table wine containing 12.5% alcohol by volume. The animals drank the wine, but in smaller amounts than tap water, and reduced their food intake in direct proportion to the calories obtained from the wine. In a third series, the fluid intake of rats was restricted to beer. The animals drank about twice as much beer during the experiment as water during the control period; they drank $2\frac{1}{2}$ to 3 times as much beer as animals in the second series of experiments drank wine. Food intake was reduced in direct proportion to the caloric volume of the ingested beer. Although the volume intake of beer greatly surpassed the intake of wine, the caloric intake was exactly the same, beer having a much lower number of

calories. While drinking either beer or wine, the rats gained weight at a normal rate and showed no dietary deficiency. These experiments confirmed that rats do not spontaneously consume more than a certain number of calories. The author believes that persons who drink alcohol should be made aware that they should eat less rather than more food when drinking alcoholic beverages and that food intake should be reduced in proportion to the caloric intake from the ingested alcohol.

Liver Disorders in Delirium Tremens.—Liver disease is an important and frequent complication of alcoholism. The present report is based on histological studies of the liver correlated with clinical and biochemical findings in 66 alcoholic patients with delirium tremens. The investigation was undertaken to further the evaluation of the incidence, cause reversibility, and sequels of hepatic abnormalities in alcoholism. The subjects were selected from a group of 338 admissions for alcoholism. There were 86 patients with delirium tremens, but 20 were excluded from the present study because of other complications. Each patient exhibited anxiety, hallucinations, delirium, and tremor. Sixty-one were men and five women. Their ages ranged from 28 to 72 years. Aspiration biopsy of the liver was performed with the Vim Silverman needle without complication. A diagnosis of normal liver was made when no significant cellular or structural changes were evident. The diagnosis of focal inflammation was based on the presence of small intralobular foci of lymphocytes or polymorphonuclear leukocytes without relation to the central vein. The diagnosis of fatty liver was made when intracellular and extracellular fat globules occupied 10% or more of the biopsy section. The diagnosis of portal cirrhosis was made in the presence of pseudolobulation, periportal fibrosis, and bile duct proliferation, with or without fatty or lymphocytic infiltration. A normal structure of the liver was found in 19, focal inflammation in 4, fatty infiltration in 20, and portal cirrhosis in 23 of the patients. Clinical and biochemical liver function studies did not provide a clue to the histological changes. The dissociation between biochemical tests and histology suggested that the latter was not responsible for the observed liver function changes. Hepatic abnormalities in delirium tremens appear to be due to dietary inadequacies. A diet deficient in lipotropic substances was associated with fatty infiltration and eventually led to fibrosis and portal cirrhosis. The degree of alcoholism and severity of cerebral symptoms could not be correlated with hepatic abnormalities. Rehabilitation of the alcoholic patient is desirable to prevent progressive liver injury. The fatty liver is curable, and prognosis in patients with hepatic fibrosis and portal cirrhosis is improved with treatment.

Rocky Mountain Medical Journal, Denver

50:917-998 (Dec.) 1953

- Teamwork in Cerebral Palsy. P. A. Draper.—p. 939.
- Respiratory Problems in Acute Bulbar Poliomyelitis. R. S. Ely.—p. 943.
- Surgical Treatment of Coronary Arterial Disease. C. P. Bailey, H. E. Bolton and W. Likoff.—p. 947.
- *Diagnosis and Treatment of Irritable Colon Syndrome. E. J. Donovan.—p. 952.

Irritable Colon.—Donovan says that terms like "spastic colon," "mucous colitis," "nervous diarrhea," and "unstable colon" have been applied to what he refers to as "irritable colon." This last term tends to focus attention mainly on colonic dysfunction, although small bowel and upper gastrointestinal irritability are often important. Because the gastrointestinal tract functions on a neuromuscular-glandular basis it easily becomes upset under emotional and irritative stimuli. In neuromuscular dysfunction there is either spasm or atony. Spasm can produce either constipation or diarrhea, but atony can produce only constipation. The spasm with associated dilatation proximal to the spasm will result in pain. The nausea, regurgitation, anorexia, and epigastric distress that accompany this motor disturbance reflect the additional component of small bowel irritability and pylorospasm that is frequently a part of the disease complex. The secretory disturbance is characterized particularly by the secretion of excessive amounts of mucus such as is seen in the so-called "mucous colitis." Most patients with the irritable colon syndrome have a combination of both motor and secretory dysfunction. The failure of physicians

to recognize the irritable colon as a functional bowel disorder constitutes one of the greatest single sources of error in the diagnosis and treatment of the patient with abdominal pain. This is proved by the large numbers of patients who have been subjected to needless surgical operations for adhesions, appendicitis, biliary tract disease, stomach and duodenal disorders, and on the pelvic organs, and who nevertheless continue to complain of the same symptoms. The differential diagnosis of irritable colon must be made by exclusion. X-ray study serves to exclude an organic disease. Both physical and mental rest for the patient and rest for the colon are the keystones of treatment. Giving the patient an explanation of normal colonic physiology in simple easily understood terms and explaining how an alteration in this coordinated mechanism accounts for his symptoms is also of great therapeutic value. Rest for the colon begins with breaking down of excessive bowel consciousness. The use of all cathartics, colonic irrigations, and enemas must be stopped, and this is most easily accomplished by an explanation of their harmful effects and how they interfere with normal reflexes. A low residue diet is used at the beginning in patients with irritability. The diet may be gradually changed to one containing natural bulk foods, such as vegetables, whole grain bread and cereals, and salads, when the irritable stage has subsided. Fruits and vegetables may be added early if they are cooked, but they should not be eaten raw until later. Adequate amounts of fluids should be prescribed. Sedatives and antispasmodics play a part in treatment of excessive emotional and parasympathetic stimuli.

South Carolina Medical Assn. Journal, Florence

49:305-332 (Dec.) 1953

- Experiences with Hydrocortisone. B. L. Freeman Jr.—p. 305.
Use of Tantalum Mesh in Repair of Ventral Herniae—Six-Year Follow-Up. F. T. Wallace and R. S. Wilson.—p. 307.
Management of the Menopause. W. C. Finger.—p. 309.
Medicine at the Crossroads: 1933-1953. L. M. Orr.—p. 311.

South Dakota J. Med. & Pharmacy, Sioux Falls

6:281-316 (Oct.) 1953

- Present Status of Intracardiac Surgery for Mitral and Aortic Stenosis. R. P. Glover.—p. 281.
Anemia in Pregnancy. R. G. Holly.—p. 288.

6:317-346 (Nov.) 1953

- Surgical Management of Duodenal Ulcer and Benign Gastric Ulcer. H. K. Gray.—p. 317.
Cholecystectomy: Indications and Technique. T. C. Douglass.—p. 320.
Misadventures in Good Medicine. F. G. Ebaugh.—p. 323.

6:347-378 (Dec.) 1953

- Rheumatoid Spondylitis: Its Diagnosis and Treatment. C. J. Smyth.—p. 347.
Brachial Plexus Block in Upper Extremity Surgery. R. E. Van Demark.—p. 351.
Management of Prolonged Labor. P. D. Bruns.—p. 354.

U. S. Armed Forces Med. J., Washington, D. C.

4:1667-1822 (Dec.) 1953. Partial Index

- Tribute to Armed Forces Institute of Pathology. M. A. Casberg.—p. 1667.
Rehabilitation of Medical Education in South Korea. B. L. Steger, F. D. McCreary and M. E. Smith.—p. 1675.
Duodenal Ulcer in Military Personnel: Social Service Study of 40 Cases. A. A. Barrett.—p. 1693.
Medicine, Warfare, and History. J. F. Fulton.—p. 1703.
Analysis of Hospital Records of Patients Discharged from Large Tuberculosis Service: Use of Punch Cards in Evaluating Data from 1,423 Cases. C. W. Tempel, F. W. Pitts, R. L. Mayock and others.—p. 1719.
Acute Anxiety Reaction Versus "Blast Concussion." C. S. Mullin Jr.—p. 1748.
Management of Erythroblastosis Fetalis in Naval Hospital. M. Kurzrok, F. B. Becker and F. Marshall.—p. 1767.
*Mass Treatment of Endamoeba Histolytica Carriers. M. Yokogawa, D. E. Wykoff and L. S. Ritchie.—p. 1776.

Mass Treatment of Endamoeba Histolytica Carriers.—It is generally believed that about 10% of the Japanese people harbor *Endamoeba histolytica*. Most persons with such infections are asymptomatic, and the question has been raised as to

the value of treating them. In two villages in Japan, 241 persons were selected for treatment. Diagnosis was based on five fecal examinations (formaldehyde-ether concentration technique) per person. Carbarsone was administered the first week and chiniofon the second week. Every three days the patients were interviewed and their symptoms and side-reactions to the drug, if any, noted. Five weeks and again seven months after treatment, each patient had five stool examinations. Of 124 patients infected with *E. histolytica*, 18 were excluded either because of inadequate therapy or incomplete follow-up. Of the remaining 106, only one was still infected five weeks after treatment. A survey seven months after treatment showed four (3.8%) with *E. histolytica*. Ultimate benefits from mass treatment will depend on how quickly reinfections occur.

Wisconsin Medical Journal, Madison

52:585-622 (Nov.) 1953

- Nasal Hemorrhage. I. Muskat.—p. 587.
Hepatorenal Glycogen Disease. A. J. Richtsmeler and J. Allen.—p. 593.
Temporal Arteritis: Review of Two Cases. J. C. Curry.—p. 597.

Yale Journal of Biology and Medicine, New Haven

26:107-178 (Nov.) 1953. Partial Index

- The Limbic System: Study of Visceral Brain in Primates and Man. J. F. Fulton.—p. 107.
Effect of Fasting on Nucleic Acid Content of Tissues in Normal and Adrenalectomized Rat. O. K. Smith.—p. 126.
Chemotherapeutic Study of Antimonials in Experimental Infection of Mice with *Cryptococcus Neoformans*. E. Grunberg and R. J. Schnitzer.—p. 132.
Prick Threshold Stimulation with Square-Wave Current: New Measure of Skin Sensibility. H. Sigel.—p. 145.
*Prospectus for Survey of Human Cancer Based upon Concept of Parental Age. L. C. Strong.—p. 155.
Effect of Whole Body X-Irradiation on Reticulo-Endothelial System as Demonstrated by Use of Radioactive Chromium Phosphate. E. R. Gabrieli and A. A. Auskaps.—p. 159.

Cancer and Parental Age.—It has been maintained that the great increase in cancer mortality at the present time is due in part to the increased average expectancy of life in man. It becomes necessary, therefore, to resolve the problems of the expectancy of life and of cancer susceptibility into their component parts. Investigators have shown in experimental animals that maternal age influences cancer susceptibility in the offspring. These are Bittner working with adenocarcinoma of the mammary gland, MacDowell and Law investigating leukemia, and Strong studying chemically induced fibrosarcoma. These studies have all been done on mice. The experimental work on chemically induced fibrosarcomas in mice has shown that the ordinal sequence of litters influences fibrosarcoma susceptibility, obviously a reflection of maternal, if not parental, age and that the size of the family determines trends in cancer susceptibility. Studies on the life expectancy in man have been reported by a number of investigators who proved that longevity in man is influenced by (1) maternal age at the time the child was born, (2) the number of children in the family, (3) the decrease of infant mortality with advancing age of parents, (4) the age at death of the parents, and probably by many other factors. It is proposed now by investigators representing the various biological fields, such as genetics, gerontology, medicine, public health, etc., to pursue the following program on human subjects; (1) ascertain data on parental (particularly maternal) age at birth of cancer proband and to compare these data with a similar group of controls (noncancer) of approximately the same age and circumstances; (2) determine the ordinal sequence of the family for cancer patients and their controls; and (3) ascertain data on vital statistics for older and younger brothers and sisters to cancer patients and their controls. This preliminary program should indicate (1) where cancer has occurred in a large family, (2) the most likely types of human cancer that should be more carefully investigated, (3) the causes of death of brothers and sisters of cancer patients and their controls, and (4) whether the differences in cancer susceptibility between children of subsequent births are great enough to warrant a more extended investigation over a period of years of the possible cumulative effect of maternal age or restriction of the size of the family on cancer in the human offspring.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

106:1-76 (No. 1) 1953. Partial Index

- *Diagnosis, Determination of Operability and Differential Diagnosis in Bronchogenic Carcinoma. F. Therkelsen and H. R. Sørensen.—p. 1.
 Blood Levels of 17-Hydroxycorticosteroids in Surgery and Allied Conditions. C. Franksson and C. A. Gemzell.—p. 24.
 Peritonitis and Intra-Abdominal Abscess Formation Due to Perforation of Carcinoma of Colon. K. R. Inberg and E. Puranen.—p. 31.

Diagnosis of Bronchogenic Carcinoma.—Diagnosis and evaluation of chances of surgical intervention are discussed on the basis of 329 patients with cancer of the lung, most of whom were admitted to the Department of Thoracic Surgery, Rigshospitalet, Copenhagen, between 1943 and 1949, while a few were admitted in the course of the last three years. Eighty-eight, 26.7%, underwent a pneumonectomy or lobectomy and in 241 the condition was considered inoperable. Of the pathological changes revealed by radiography, atelectasis occurring in 209 patients (63.5%) was the commonest; next in frequency was neoplastic infiltration that was observed in 149 patients (45.3%). The operability in the presence of atelectasis and neoplastic infiltration corresponded to the average number of patients operated on, as contrasted with the fact that in 89 patients (27.1%) with a hilar shadow only 12 lesions (13.5%) were operable. The operability was significantly higher in patients with an isolated round tumor plus isolated cysts and abscesses than in the remainder of the series. In searching for a tumor of the lung the anteroposterior exposure must always be supplemented by a lateral one. In 130 of the 241 inoperable cases and in 50 of the 88 operable cases, the tumor was visible on bronchoscopy. The great significance of bronchoscopy is stressed. Bronchography may be of value in diagnosis and of decisive significance in some cases, particularly when bronchoscopic examination showed a normal appearance. Obstruction of a bronchus by the tumor was revealed in 65 of 68 inoperable cases with positive bronchographic findings, but occasionally apparent obstruction of the bronchus is not caused by a tumor, but by accumulation of secretion or granulation tissue. Tomography is an adjunct to bronchography in revealing possible obstruction of bronchi by a tumor, but a certain reserve in interpreting the shadow is advisable. Cytological examination of the sputum was of limited value. Enlargement of the mediastinal lymph nodes demonstrated by tomography and bronchoscopy (and bronchography) is a serious sign, but in a large number of patients it was possible to perform radical extirpation of lymph nodes, and, in almost 50% of those studied microscopically, the removed lymph nodes did not contain metastases. Extensive use of exploratory thoracotomy is necessary; even at operation it may be difficult occasionally to determine the nature of the lesion. Microscopic examination of frozen sections of a biopsy specimen is of great importance and should be done in all doubtful cases. The value of this procedure is, however, also limited since in cases of centrally located small tumors the biopsy specimen is often obtained from the peripheral area and shows only atelectasis and inflammation. Only positive biopsy findings are reliable. In the absence of a biopsy specimen, the result of one of the other diagnostic methods should not be considered decisive, but the findings from all of them should be combined to give a final result.

Annales Paediatrici, Basel

181:329-388 (Dec.) 1953. Partial Index

- Tuberculosis of Liver in Childhood. E. Stransky, E. P. Dacanay, P. S. Lacson and A. Reyes.—p. 329.
 *Serologic Findings in Infants Given Exchange (Exsanguination) Transfusions; Contribution to Problem of Amount of Blood Required for Exchange Transfusions. H. Zwirn.—p. 343.
 Comparison of Clinical and Electroencephalographic Data in Children with Encephalitis. A. Gautier and N. Boyet-Dubois.—p. 353.

Serologic Findings in Infants Given Exchange Transfusions.—The behavior of the Coombs' test, of the antibody titer, and of the Rh-positive blood corpuscles was studied in the course of exchange transfusions given to 31 infants with erythroblastosis

fetalis. Specimens of the infants' blood were drawn before the start of the transfusion and each time after the administration of 100 cc. of blood. The exchange transfusions were given according to Diamond's technique. The amount of the exchanged blood varied from 500 to 900 cc. All the infants had positive results from the Coombs' test before the start of the transfusion, but conversion to negative occurred in all except two. In most of them the change occurred after an exchange of only 300 to 400 cc., although Rh-positive blood corpuscles, free antibodies, and free antibodies and Rh-positive blood corpuscles could still be demonstrated in the blood specimens. After an exchange of 500 cc. of blood, Rh-positive blood corpuscles and/or free antibodies were still observed in seven infants (21%) and after an exchange of 600 cc. in four infants (12%). The remaining Rh-positive blood corpuscles, the persistent antibodies, and the bilirubin originating from the hemolysis of the blood corpuscles may exert an injurious influence on the tissue. The aim of the therapy must, therefore, be to reduce these substances to a minimum. Diamond's and Wiener's better results obtained with larger transfusion amounts may be attributed to further reduction of antibodies and bilirubin in the infant, an assumption that should be confirmed by special studies. These better results and Zwirn's serologic findings in the course of the exchange transfusions in the 31 infants show the inadequacy of giving less than 700 cc. of blood. The author recommends an exchange of 750 to 1,000 cc. of blood in the course of the first exchange transfusion without excluding the occasional use of repeated transfusions.

Archivio Italiano di Chirurgia, Bologna

76:413-494 (No. 6) 1953. Partial Index

- Indications for Surgical Treatment of Mitral Stenosis. A. Testini and A. Riberi.—p. 413.
 *Experimental Study of Homoplastic Arterial Grafts: I. Pathways of Nutrition and Tissue Substitution. A. Bencini and P. Bellinazzo.—p. 439.
 *Id.: II. Granulopoietic Activity in Grafted Arterial Segments. P. Bellinazzo and A. Bencini.—p. 468.
 Treatment of Acute Experimental Renal Insufficiency with Intestinal Perfusion Through an Appendicostomy. T. F. Lago.—p. 473.

Nutrition of Arterial Grafts.—The authors' experimental studies on the source of nutrition of arterial grafts indicated that the first nourishment comes from the perivascular tissues of the host and that later there is an ingrowth of connective tissue elements into the coats of the graft with the formation of new vessels. It was also revealed that contact of the graft with the surrounding tissues is indispensable not only for the nutrition of the graft but also for a successful anastomosis. There was always degeneration, fragmentation, and necrosis of the connective tissue and muscle fibers of the graft when it was isolated from the surrounding tissue by means of polyethylene sheets. These changes began in the outer coat progressing to the inner coat and causing formation of a thrombus in the lumen of the graft. Necrotic alterations were not observed when the arterial segment was isolated from all contact other than the surrounding tissue. When the blood stream was diverted from the graft, there were at first degenerative changes in the inner coats with deterioration of the intima and media; but these were rapidly restored to normal by elements of the connective tissue of the host thus suggesting that some connections had been formed between the outer coat of the graft and the surrounding tissue and that nutrition was arriving from it to the inner coat of the graft. In cases in which the graft was in contact with the blood stream only, the outer coat began to deteriorate rapidly; later the degenerative process involved the media and the intima that had at first remained unaltered and maintained their vital aspects. The authors conclude that the source of nutrition of arterial grafts is dual, the blood stream pulsating through the graft and the surrounding tissues. Since the latter is indispensable, it is important that the arterial graft be surrounded by as much vascular tissue as possible to promote vascularization of the graft.

Vital Activity in Arterial Grafts.—Studies were made to determine whether there is in the walls of arterial grafts some of the vital activity that is present in the walls of arteries in normal conditions. The possibility of the presence of a granulopoietic activity was tested by introducing small amounts of diluted China ink into the walls of the grafts and, for control, into the walls of the stumps of the host artery and of normal arteries. The histo-

logical studies, made from the 3rd to the 40th day after the graft was performed, indicated that from the first days large cells filled with granules of ink were present in the walls of the grafts. They were located mainly around the area into which the ink had been injected and became numerous with time. Later greater quantities of granules assembled in the perivascular connective tissue. The same phenomenon was observed in identical quantitative and chronological order in the walls of the arterial stumps and the normal arteries. Ink was also fixed when the walls of normal arteries were isolated from the surrounding tissue by means of polyethylene sheets. But there was no sign of granulopoietic activity in the walls of grafted arterial segments when they were likewise isolated. According to the authors, these histiocyte-like elements that are autochthonous in normal arteries are also present in the arterial grafts at the time of the operation, but they have lost their ability to fix China ink because of a state of functional inhibition. Their state is similar to what Carrel called a state of "latent life." They attributed the presence of the granulopoietic activity in the walls of the normally grafted arterial segments to the fact that histiocyte-like elements with this activity had migrated into the wall of the graft from the surrounding tissues.

Archivos Argentinos de Pediatría, Buenos Aires

40:67-130 (Aug.) 1953. Partial Index

- *Indications for and Results of Hemispherectomy in Infantile Hemiplegia. J. C. Christensen.—p. 67.
The Endocrine Factor in Disturbances of Adaptation in the Nursing. F. C. Millia.—p. 79.

Hemispherectomy in Infantile Hemiplegia.—Organic cerebral lesions sustained during pregnancy, birth, or early infancy may be followed by infantile hemiplegia. The onset, which is usually more or less abrupt, is succeeded by a period of limited recovery, after which the condition becomes stabilized. The resulting atrophic lesion, with its accompanying gliosis and neuron destruction, may be either localized or diffuse, sometimes even extending throughout the hemisphere. Paralysis is generally less pronounced than in the adult, but character changes and a diminution in intellectual capacity, ranging from moderate oligophrenia to idiocy, are frequent, and many of the patients suffer epileptic attacks of varying severity. The mental disturbances to which they are subject are probably due in large part to the epileptogenic activity of the affected hemisphere. Hemispherectomy, which has proved effective in arresting epilepsy and checking progressive mental deterioration in patients in whom epileptic manifestations are associated with hemiplegia, was used successfully by the author in four children ranging in age from 6 to 9 years. The patients are still handicapped by their intellectual deficit and hemiparesis, but the benefits derived from the elimination of epileptic attacks and the improvement in their conduct are inestimable. Removal of the diseased hemisphere has apparently been followed by better utilization of the healthy one.

British Medical Journal, London

2:1335-1388 (Dec. 19) 1953

- *Studies on Pancreatitis. E. G. Saint and S. Weiden.—p. 1335.
*I-Noradrenaline in Treatment of Shock in Cardiac Infarction. K. S. Smith and A. Guz.—p. 1341.
Acute Disseminated Encephalomyelitis and Acute Disseminated Sclerosis: Results of Treatment with ACTH. H. G. Miller and J. L. Gibbons.—p. 1345.
Conservative Surgery in Treatment of Ulcerative Colitis. S. O. Aylett.—p. 1348.
Phlegmasia Caerulea Dolens. P. Martin.—p. 1351.
Survival of Transfused Red Cells in Scurvy. C. Merskey.—p. 1353.
Cerebellar Necrosis in Case of Subarachnoid Hemorrhage. A. L. Wells.—p. 1356.
Acute Dermatomyositis. L. Clein.—p. 1357.

Pancreatitis.—The clinical features and laboratory investigations in 24 proved cases of acute and chronic pancreatitis were studied at the Royal Melbourne Hospital in Melbourne, Australia. It is felt that the confusion of thought that exists on this subject might in part be dispelled if attention were paid to the etiological aspects of the problem. The authors differentiate five clinical entities—traumatic pancreatitis following surgery of the stomach and duodenum; virus pancreatitis complicating mumps and possibly infectious hepatitis; reflux pancreatitis complicating biliary

calculi and following cholecystectomy; chronic nutritional pancreatitis or "chronic relapsing pancreatitis," in malnourished alcoholic patients; and metabolic pancreatitis complicating hyperlipemia and hypercholesterolemia. In acute pancreatic necrosis, good results were obtained with conservative treatment—continuous aspiration of the gastric contents, electrolyte replacement, and administration of antibiotics. Chronic relapsing, or nutritional, pancreatitis is a condition characterized by recurrent attacks of pancreatic edema and necrosis causing pain; ultimately, destruction of the gland and replacement fibrosis lead to wasting, steatorrhea, and diabetes. Pancreatic calcification is occasionally visible radiologically and induration of the head of the pancreas may cause obstructive jaundice. In the absence of biliary calculi, cholecystectomy is contraindicated in chronic pancreatitis. When severe and unremitting pain becomes a feature in advanced cases, a choice must be made between sympathectomy and pancreaticoduodenectomy. Relapsing "reflux" pancreatitis was found to occur in female patients after cholecystectomy. Further data on the mechanics of the sphincter of Oddi and the common bile duct are required before agreement on the surgical relief of these patients can be reached. The diagnosis of mild cases of acute and chronic pancreatitis may be difficult. Although elevation of the urinary diastase level is helpful, this may be only transient. Collateral evidence of steatorrhea, glycosuria, pancreatic calcification, and impaired protein digestion should be sought for in diagnosing chronic pancreatitis of all types.

I-Noradrenaline in Cardiogenic Shock.—Pressor substances such as epinephrine (Adrenalin) and ephedrine have not been used in the past in the treatment of severe, persistent cardiogenic shock because of the risk of inducing ventricular fibrillation. Arterenol (Noradrenaline) and, particularly I-arterenol (I-Noradrenaline) do not present the same disadvantages, and it is their successful use in anesthesiology that prompted this experiment. Six patients in severe shock owing to cardiac infarction were treated by intravenous infusions of dextrose-saline containing levarterenol bitartrate (Levophed). In all of them death appeared imminent or probable; the systolic blood pressure had fallen to levels between 45 and 80, and in two instances the wrist pulse could not be felt. In each case, the start of the infusion was followed at once by clinical improvement; the systolic pressure rose to levels between 90 and 100, and the pulse became palpable. Where consciousness had been lost it was regained. Two patients who had had previous infarcts responded in this way to the infusion, but died within three and four days; recent as well as old infarctions were proved at necropsy. The remaining four patients made good recoveries after discontinuance of the infusions. One died of congestive heart failure four months after the cardiac infarction; but the other three were alive and active at intervals ranging from six to 13 months afterwards. Their lives apparently were saved by the treatment.

Chirurg, Berlin

24:529-570 (Dec.) 1953. Partial Index

- Cardiospasm. M. Saegesser.—p. 529.
Urography in Tumors of Sigmoid and Rectum Penetrating into Urinary Bladder. S. Petković.—p. 532.
*Synergistic Effect of Penicillin and Streptomycin in Treatment of Peritonitis. K. Hörhold.—p. 535.
Study of Postoperative Protein Changes. G. Grundmann and R. Fischer.—p. 543.

Synergistic Effect of Penicillin and Streptomycin in Peritonitis.—Penicillin combined with streptomycin was given intraperitoneally to 54 patients with perforative peritonitis. Of the 54 patients, 20 had perforating gastric and duodenal ulcers, 6 had perforating gallbladders, 16 had progressive peritonitis after perforative appendicitis, and 12 had diffuse peritonitis after perforative appendicitis. Most of the patients were operated on on the second to the fourth day of the disease. The dose of the intraperitoneally administered drugs depended on the severity of the patient's condition. Those with progressive and particularly with diffuse peritonitis were given 200,000 to 1,000,000 units of penicillin and 1 to 2 gm. of streptomycin. Combined administration of penicillin and streptomycin frequently was repeated with the aid of an intraperitoneal drain on the first two to three postoperative

days. Intraperitoneal administration of the antibiotics is of great importance because defense processes of the organism against the pathogenic agents that have entered the free abdominal cavity take place directly in the abdominal cavity and not in the blood stream. To prevent a rapid lowering of the concentration of the drugs in the abdominal cavity, additional intramuscular injections of 200,000 units of repository penicillin and of 0.5 gm. of streptomycin were given every 12 hours. The total dose of the parenterally administered drugs was 2 to 3,000,000 units of penicillin and 4 to 6 gm. of streptomycin. The antibiotics were given in solution, i. e., 200,000 units of penicillin in 2 cc. of isotonic sodium chloride solution and 1 gm. of dihydrostreptomycin in 4 cc. of the same solution. Death from diffuse peritonitis did not occur, not even in desperately ill patients. The deaths of two patients resulted from different causes; one 75-year-old man with perforating gallbladder died of suppurative bronchopneumonia on the sixth postoperative day, and one 65-year-old man died of pulmonary embolism on the 11th day after suture of a perforating duodenal ulcer. Penicillin combined with streptomycin exerted a synergistic effect on the mixed bacterial flora comprised of coli bacteria, streptococci, enterococci, *Clostridium perfringens*, and anaerobic micrococci, with striking improvement of the patient's condition. Paralytic ileus occurred only sporadically. Toxinemia, which occurred shortly after the intraperitoneal administration of the antibiotics, presented a difficult problem, but administration of antihistaminic agents and a proprietary keratin derivative (Detoxin) proved effective in its control. The intraperitoneal administration of the antibiotics did not impair the peristalsis, and there was no evidence of formation of adhesions.

Clinical Science, London

12:317-416 (Nov.) 1953

- Function of Organs of Zuckerkindl. G. B. West, D. M. Shepherd, R. B. Hunter and A. R. Macgregor.—p. 317.
 Plasma Volume in Glomerulonephritis. A. W. Steinbeck.—p. 327.
 Red Cell Life-Span in Nephritis and Hepatic Cirrhosis. H. Chaplin and P. L. Mollison.—p. 351.
 Blood Flow in Human Muscle During Cyclopropane Anaesthesia. A. H. Kitchen, C. Sanger, H. E. de Wardener and I. M. Young.—p. 361.
 Cantharides Blisters in Children with Rheumatic Fever. B. M. Ansell, F. Antonini and L. E. Glynn.—p. 367.
 Secretion of Radio-Active Phosphorus in Saliva and Gastric Juice in Man. J. Stevens.—p. 375.
 *Utilisation of Folic Acid in Anaemia and Leukaemia. G. H. Spray and L. J. Wits.—p. 385.
 Utilisation of Folinic Acid Injected Intravenously. G. H. Spray and L. J. Wits.—p. 391.

Utilization of Folic Acid in Anemia and Leukemia.—Spray and Wits include under the term folic acid all substances in plasma and urine that stimulate the growth of *Lactobacillus casei* in microbiological assays; the term pteroyl glutamic acid is used to refer only to the pure compound. The authors had observed previously that, after doses of 1 mg. of pteroyl glutamic acid by mouth, untreated patients with pernicious anemia and with steatorrhea showed lower concentrations of folic acid in the plasma, and lower urinary excretion of the vitamin, than either normal persons or patients with pernicious anemia in remission. This suggested either that there was deficient absorption of folic acid in pernicious anemia or, more probably, that there was an abnormal demand for folic acid associated with shortage of the other hemopoietic factor, vitamin B₁₂. In the hope of obtaining further information about the role of folic acid in hemopoiesis, the concentrations of folic acid in the plasma and its excretion in the urine were measured before and after the oral administration of 1 mg. of pteroyl glutamic acid in a series of patients with a variety of anemic and leukemic conditions. The series here reported includes eight patients with hypochromic anemia before treatment, two with hypochromic anemia under treatment, one with scurvy, two with pernicious anemia under treatment with vitamin B₁₂, and eight with hemolytic anemia. Data are also given on one patient with polycythemia vera and nine patients with chronic myeloid or chronic lymphatic leukemia. The results were compared with the responses of normal persons to the same test. There appears to be normal utilization of folic acid in hypochromic anemia both before and during treatment, but the patient with scurvy and the two patients with pernicious anemia under treatment with vitamin B₁₂ all showed abnormally low levels of

folic acid in the plasma and low excretion in the urine. In hemolytic anemia there is a slight indication of an increased demand for folic acid, as shown by lower levels of folic acid in the plasma and somewhat lower urinary excretion than in normal persons after a test dose. The single patient with polycythemia vera responded to the test normally, but most of the patients with leukemia showed low levels of folic acid in plasma and urine. The authors feel that these observations support the idea that folic acid and vitamin B₁₂ are both involved in the synthesis of the same constituents of the red blood cell, perhaps nucleoproteins, and only when there is a shortage of some substance involved in this particular chain of reactions does an abnormal demand for folic acid appear. Folic acid also apparently plays some part in the formation of white blood cells, but its role in this respect is even less clear than its role in erythropoiesis.

Fortschr. Röntgenstrahlen & Röntgenpraxis, Stuttgart

79:557-680 (Nov.) 1953. Partial Index

- Differential Diagnosis of Various Forms of Central Shadow in Early Childhood. H. W. Kirchhoff.—p. 557.
 Oblique Tomography and Its Value in Localization of Pulmonary Lesions. G. Mark.—p. 567.
 Value of Bronchography in Diagnosis of Pulmonary Tuberculosis. E. J. Fischer.—p. 590.
 Important Sign in Roentgenologic Diagnosis of Pulmonary Abscess. G. Liess.—p. 613.
 *Roentgenologic Aspects of Poliomyelitis, Particularly of Pulmonary Changes. K. H. Volbeding and R. Repkewitz.—p. 622.
 Roentgenologic Aspects of Pulmonary Histoplasmosis. J. Franzen and W. Tilling.—p. 633.
 Normal and Pathologically Changed Pulmonary Vessels in the Tomogram. T. Hornykewytsch and H. S. Stender.—p. 639.

Roentgenologic Aspects of Pulmonary Changes in Poliomyelitis.

—The pulmonary complications often have a decisive influence on the course of respiratory paralysis in poliomyelitis. For this reason Volbeding and Repkewitz employed all diagnostic resources to detect such pulmonary complications early. In addition to the customary clinical, chemical, and neurological methods of examination, they resorted to roentgenoscopy, although it involves considerable technical difficulties, particularly if patients are paralyzed and/or confined in an iron lung. Their studies were made in a Hamburg hospital to which 226 of a total of 446 patients with poliomyelitis were admitted during the Hamburg poliomyelitis epidemic of 1947. During the years 1948, 1949, and 1950, the patients admitted to this same hospital numbered 98, 27, and 17, respectively, or a total of 368 in the course of the four years. A table records among other data the number of patients in whom roentgenoscopy was done and the various complications that were detected. There was a considerable number of adults with poliomyelitis who had massive atelectasis. In discussing the pathogenesis of this form of atelectasis, the authors suggest that profuse formation of mucus in the upper respiratory tract, because of paralysis of the muscles of inspiration, is probably the chief cause. This profuse formation of mucus may even bring about obstruction of bronchi as was revealed by bronchoscopic examinations carried out by American investigators. Bronchopneumonia usually occurred during the final stage. Diaphragmatic paralysis of various degrees of severity were also detected by roentgenoscopy. Atrophied intercostal muscles likewise presented characteristic features on the chest roentgenograms.

Journal of Endocrinology, London

10:1-93 (Nov.) 1953. Partial Index

- Precocious Puberty and Chorioepithelioma of Pineal Gland with Report of Case. H. Zondek, A. Kaatz and H. Unger.—p. 12.
 Influence of Hypothermia on Uptake of ¹³¹I by Thyroid. F. Verza, V. Vidovic and S. Hajdukovic.—p. 46.
 Progesterone Content of Body Fluids and Tissues. D. G. Edgar.—p. 54.
 Anti-Thyroid Action of Para-Aminosalicylic Acid. J. Beattie and R. D. Chambers.—p. 65.
 Influence of Placental Size on Foetal Growth According to Sex and Order of Birth. T. McKeown and R. G. Record.—p. 73.
 Effect of Para-Hydroxypropionophenone on Thyroid Gland. P. Tala, J. Railo and G. Elfving.—p. 82.
 Effect of Cortisone and ACTH on Adrenal Transplants in Rat. M. F. A. Woodruff and T. Boswell.—p. 86.

Journal of Laryngology and Otology, London

67:641-700 (Nov.) 1953

Cancer of Pharyngo-Laryngeal Groove with Special Reference to Sinus Pyrimiformis. M. Lederman.—p. 641.

Frontal Bone Cysts of Obscure Aetiology and Nature. A. Handousa.—p. 655.

Further Observations on Conditioning of Respiratory Air. P. Cole.—p. 669.

Transitional Cell Papilloma of Post-Pharyngeal Wall. A. Radcliffe.—p. 682.

*Vertigo in Random Sample of Elderly People Living in Their Homes. H. Droller and J. Pemberton.—p. 689.

Vertigo in Elderly Persons.—According to Droller and Pemberton, vertigo, often referred to as dizziness or giddiness, is the sensation of apparent movement. This movement may be in any direction and is not necessarily rotatory. It is always associated with difficulty in maintaining balance and makes the sufferer clutch for support. The observations reported are based on the medical examinations of 476 elderly persons of Sheffield, living in their own homes, either alone or with their spouses. Information on the incidence and degree of severity of vertigo was systematically collected for the whole group. Data for blood pressure at rest and after two minutes standing and data on tinnitus and deafness were also collected. The incidence of vertigo was 47% in the men and 61% in the women. In the majority vertigo appeared to be closely associated with arteriosclerosis of the labyrinth. In a small number of subjects a drop in blood pressure on changing from the supine to the upright position brought on an attack. Typical Ménière's syndrome was rare. In a few subjects several vertigo-producing factors operated simultaneously.

Journal Neurol., Neurosurg. & Psychiatry, London

16:213-290 (Nov.) 1953

Brain-Stem Lesions in Parkinsonism. J. G. Greenfield and F. D. Bosanquet.—p. 213.

Arnold-Chiari Malformation: Radiological Examination with "Ziedses Des Planies" Procedure. H. Verbiest.—p. 227.

Temporal Lobe Epilepsy with Personality and Behaviour Disorders Caused by an Unusual Calcifying Lesion: Report of Two Cases in Children Relieved by Temporal Lobectomy. M. A. Falconer and D. A. Pond.—p. 234.

Spinal Pathways Subserving Defaecation and Sensation from Lower Bowel. P. W. Nathan and M. C. Smith.—p. 245.

Substances Which Support Respiration and Metabolic Response to Electrical Impulses in Human Cerebral Tissues. H. Mellman.—p. 257.

Sex Ratio in Convulsive Disorders with Note on Single-Sex Sibships. C. Ounsted.—p. 267.

Prognostic Factors in Electric Convulsive Therapy. R. F. Hobson.—p. 275.

Journal of Physiology, Cambridge

122:209-428 (Nov.) 1953. Partial Index

Spleen in Regulation of Arterial Blood Pressure. D. Granaat.—p. 209.

Antidiuretic Substances in Human Urine After Haemorrhage, Fainting, Dehydration and Acceleration. R. L. Noble and N. B. G. Taylor.—p. 220.

Motor End-Plate Differences as Determining Factor in Mode of Action of Neuromuscular Blocking Substances. E. J. Zamis.—p. 238.

*Neuromuscular Transmission in Myasthenia Gravis. H. C. Churchill-Davidson and A. T. Richardson.—p. 252.

Effect of Inhalation of Carbon Dioxide in Air on Respiration of Full-Term and Premature Infant. K. W. Cross, J. M. D. Hooper and T. E. Oppé.—p. 264.

Variations in Intra-Abdominal Pressure and Activity of Abdominal Muscles During Breathing; Study in Man. E. J. M. Campbell and J. H. Green.—p. 282.

Determination of Elastic Properties of Peripheral Vessels in Vivo. T. G. Richards.—p. 291.

Reflex Activity of Extensor Motor Units Following Muscular Afferent Excitation. E. C. Alvord Jr. and M. G. F. Fuortes.—p. 302.

Effects on Colour Vision of Adaptation to Very Bright Lights. G. S. Brindley.—p. 332.

Effects of Coughing on Intrathoracic Pressure, Arterial Pressure and Peripheral Blood Flow. E. P. Sharpey-Schafer.—p. 351.

Variations in Apparent Viscosity of Human Cervical Mucus. A. F. Clift and J. Hart.—p. 358.

Method for Calculation of Metabolic Water. S. D. Morrison.—p. 399.

Enzymic Oxidation of Tryptamine Derivatives. H. Blaschko and J. J. Philpot.—p. 403.

Pigment Formation from Tryptamine and 5-Hydroxytryptamine in Tissues: Contribution to Histochemistry of Amine Oxidase. H. Blaschko and K. Hellmann.—p. 419.

Neuromuscular Transmission in Myasthenia Gravis.—According to Churchill-Davidson and Richardson it is generally accepted that the functional abnormality in myasthenia gravis is a failure of neuromuscular transmission, and the previous theories of causation have been derived from studies of the action of acetylcholine in normal neuromuscular transmission. The introduction of decamethonium salts that act in a manner similar to acetylcholine has allowed a reinvestigation of the mechanism of not only normal but also myasthenic neuromuscular transmission and, in particular, has indicated the response of the motor end-plates in these states to chemical excitation. In this study the reaction of myasthenic muscles to decamethonium is contrasted with that of normal muscles under identical conditions and the mechanism of these different reactions investigated. It was found that if sufficiently high doses of decamethonium are given to patients with myasthenia gravis, the muscles that show the greatest degree of clinical weakness are the first to undergo a failure of neuromuscular transmission. The neuromuscular block, when produced, has the characteristics of one due to competitive inhibition. The clinically normal muscles of myasthenics possess a marked tolerance to the depolarizing action of decamethonium iodide. A comparison of the urinary excretion of decamethonium in myasthenic patients and normal subjects indicates that there is no significant difference in the two groups. The fact that decamethonium is excreted by myasthenics unchanged indicates that the ultimate production of competitive inhibition in myasthenia by decamethonium is in fact due to changes in the motor end-plate. The authors suggest that the failure of neuromuscular transmission in myasthenia is derived from abnormalities in the response of the motor end-plate to acetylcholine.

Journal of Tropical Medicine and Hygiene, London

56:251-276 (Nov.) 1953

Preliminary Study of Incidence of Intestinal Schistosomiasis Amongst Non-White Races of Natal, Union of South Africa. J. Schneider.—p. 251.

Pseudotinea Interdigitalis Pedum. A. Castellani.—p. 255.

*Observations on Sickle-Cell Disease in Jamaica. D. B. Jelliffe.—p. 257.

Liver Changes in Schistosomiasis in Children: (Preliminary Report). E. Stransky and N. E. Pesigan.—p. 261.

Sickle Cell Disease in Jamaica.—While the sickle cell trait is found in only from 5 to 10% of American Negroes, the incidence of sickle cell anemias is relatively high. In contrast to this, in tropical Africa, it is usually conceded that the opposite is true—the trait being much more frequent and the anemia surprisingly uncommon. The population of Jamaica is mixed. The 1943 census showed that, of the 1,237,063 inhabitants, the main racial groups were made up as follows: (1) predominantly African, 78.1%; (2) other Afro-Caucasian or Afro-Asian mixtures, 17.5%; (3) Caucasian, 1.1%; (4) East Indian, 2.1%; and (5) Chinese, 1%. In a recent sickle cell survey by Jelliffe and others, 2,116 Jamaican children of different racial groups were tested. Chinese, East Indian, and Caucasian subjects showed no sickling, while, of the main group of mixed Afro-Caucasian descent, 5.7% were found to have the sickle cell trait. This is in accord with results obtained with similar groups elsewhere in the Caribbean, as for example 5.3% in Cuba, 5.6% in Puerto Rico, 5.5% in Martinique, 8% in Guadeloupe, and 11.7% in Curaçao. The commonness of sickle cell anemia among Negroes in the Americas and the Caribbean has sometimes been explained by the better facilities available for diagnosis, together with the possibility that patients are more likely to attend for treatment in these areas. While this is certainly a partial explanation, it is the author's experience that the difference is a real one. In Ibadan, a large African city of half a million persons in western Nigeria, 23.7% have been shown to be trait carriers, while only 22 cases of sickle cell anemia were seen in an 18 month period. In contrast to this, the much lower trait incidence in Jamaica of 5.7% and the commonness of the anemic state are striking. The reason for this apparent paradox is still unknown. It has been suggested, however, that the commonness of sickle cell anemia in the New World as opposed to Africa was due to the admixture of African and Caucasian genes as a result of intermarriage. Recent genetic and clinical studies, summarized by Zuelzer in 1952, may possibly partially confirm this concept.

begin either as a frank tuberculoid or lepromatous form. Polyneuritic lesions, whether alone or complicated by the main types, are considerably less frequent in these countries. Although leprosy may be evanescent in childhood, the author believes that in a great proportion of the children leprosy would progress and cause infection of others. There is a lack of adequate accommodation in these countries for all existing cases of leprosy, but special attention to children is recommended as one of the most economic and fruitful forms of attack on the leprosy problem.

Medical Journal of Australia, Sydney

2:773-808 (Nov. 21) 1953. Partial Index

- "Q" Fever in South Australia: II. Surveys of Human and Bovine Sera. J. Stokes.—p. 778.
 Modern Treatment of Benign Prostatic Obstruction. I. Hamilton.—p. 780.
 Some Aspects of Anaesthesia in Abdominal Surgery. J. F. McCulloch.—p. 786.
 Anaesthesia in Abdominal Surgery: Mutual Problems of Anaesthetist and Surgeon. V. M. Coppleson.—p. 787.

2:809-840 (Nov. 28) 1953. Partial Index

- Virology as Independent Science. F. M. Burnet.—p. 809.
 Fungous Infections in Hospital Practice. E. B. Durie and S. Brown.—p. 813.
 South-West Wind. C. Sands.—p. 814.
 *Problems in Fertility and Sterility Due to Ectopic Pregnancy: Study of 259 Cases. A. Grant.—p. 817.
 Penicillin Sensitivity. P. W. Farmer.—p. 820.

Fertility and Sterility After Ectopic Pregnancy.—It is commonly believed that the occurrence of an ectopic gestation will in no way prejudice a woman's chances of producing a living child later on. In order to answer several questions on the relationship between ectopic pregnancy and sterility, Grant made studies on 259 women who had had ectopic pregnancy and who had been observed at two different departments of a Sydney women's hospital. The studies on these women and reports in the literature clearly show that the occurrence of an ectopic pregnancy is a major accident for the patient who wishes to produce a family, because, at the best estimate, only one-third of such patients will ever succeed in having a live baby, and in many groups the obstetric prognosis is much worse. Some investigators found that only one in every six of such women had a live baby during the rest of their life. Inquiry into the causes of this sterility reveals that it is located in the Fallopian tubes in 67% of the cases reviewed here and that most likely the tubal factor is involved in 81% of the cases. The incidence of ectopic gestation in patients attending a sterility clinic is seven times the usual incidence, and the frequency of ectopic gestation in patients treated for tubal blockage by high-pressure insufflation is 25 times that found among other pregnant women. The alternatives are to do nothing or to operate. However, tubal plastic operations are not yet very successful. The damage to the residual tube in most of the patients who have had an ectopic pregnancy appears to have been the result of salpingectomy in 50% of cases. The other 50% suffered bilateral tubal damage at the time of the original septic lesion in the pelvis, which preceded the occurrence of the ectopic gestation. No patient has been adequately treated for an ectopic pregnancy until her one residual tube has been proved patent by subsequent insufflation with carbon dioxide or by salpingography with the use of an aqueous and nonirritating medium.

Minerva Ginecologica, Turin

5:549-588 (Sept. 15) 1953

- Theoretical Assumption and Experimental and Clinical Studies on Artificial Hypothermia in Obstetrics and Gynecology. G. Valle, U. Narducci, G. Ferraris and G. Massone.—p. 549.
 Hypercholesteremia of Pregnancy and Zimmerman's Reaction. E. Solla.—p. 569.
 Visualization of Placenta by Aortography. P. Spanio and C. Nejedly.—p. 573.
 *Postoperative Disease and Corticoadrenal Function. G. Ferraris and G. Massone.—p. 579.

Corticoadrenal Function in Postoperative Disease.—To test the role of the adrenals in the causation of the so-called postoperative disease, the authors studied the circulating eosinophils, the urine content of uric acid and creatinine, and the urinary excretion

Leprosy Review, London

24:175-234 (Oct.) 1953

- Leprosy in Anglo-Egyptian Sudan East and Central Africa. R. G. Cochran.—p. 177.
 *The Leprotic Child in Africa. J. R. Innes.—p. 224.

The Child with Leprosy in Africa.—Innes carried out leprosy surveys in East Africa from 1946 to 1951. Most of the data obtained were reported previously. This paper is concerned with 1,492 cases of leprosy in children which were found in the natural or untreated state in a total of 7,072 cases of leprosy of all ages. The term child is used to include all persons of 14 years of age and under. The countries in which these 1,492 cases in children were found comprise Kenya, Tanganyika, Zanzibar and Pemba, Uganda, northern Rhodesia, and Nyasaland. Nearly every African tribe resident in these countries is represented in these children who were not in leprosariums but who came from the homes and villages and who at the time of discovery were living in the same conditions as their siblings who did not have leprosy. The fact that children accounted for 21% of all cases of leprosy indicates that leprosy is a living and continuing entity among these peoples. The sex ratio was 4:3, with males predominating. Analysis of the ages indicated a great increase between 5 and 14, which suggests that many must have sustained their infection at an early age. There were no indications that leprosy was acquired by one or a few momentary contacts, but rather by living in daily, and more especially nightly, contact with persons with leprosy in the family group. Leprosy in children and the young is mainly a problem of environment and living conditions. Protection of children from leprosy is an important key to the eradication of leprosy from a community. Leprosy in children

of the 17-ketosteroids in 17 women in whom interventions for gynecologic disorders had been performed at the Novara school of obstetrics. A marked eosinopenia, which was paralleled by an increased ratio between uric acid and creatinine, was found immediately after the operation in most of the patients; the changes in the 17-ketosteroids were not so marked and constant, but their excretion was slightly increased. These alterations are ascribed to an alarm phase of the general adaptation syndrome of Selye. The surgical trauma, which stimulates the adrenal cortex to a degree proportional to its length rather than its gravity, determines a greater peripheral need for corticoids, the blood level of which is, therefore, decreased; the hypophysis reacts by elaborating a greater amount of corticotropin; and this in turn stimulates the adrenal to a greater production of corticoids. When the stress ceases, the hyperactivity of the hypophyseal-adrenal system decreases and these blood and urine tests are again normal. In the authors' patients the eosinophils increased to above the preoperative values only by the eighth day, whereas the acid uric-creatinine ratio had already become normal by the 24th or 48th hour. Complications of the postoperative course delayed this return to normal. The authors conclude that the presence of a marked eosinopenia and an increased ratio between acid uric and creatinine within the first 24 postoperative hours suggest that the function of the patient's hypophyseal-adrenal system is good and the neuroendocrine defense reaction to the intervention will be efficient. An immediate postoperative marked eosinopenia is sufficient to eliminate the hypothesis of corticoadrenal deficiency in cases of shock. On the other hand, an increased number of eosinophils and irrelevant changes in the acid uric-creatinine ratio immediately after the intervention suggest adrenal insufficiency and possibly a bad prognosis. Of prognostic value is also a premature or a late return of these blood and urine alterations to the preoperative values. These blood and urine determinations have postoperatively the same prognostic value that Thorn's test with corticotropin has preoperatively.

Presse Médicale, Paris

61:1569-1588 (Nov. 28) 1953

- *Dosage of Isoniazid (Isonicotinic Acid Hydrazide) in Children. R.-A. Marquézy, C. Bach and J.-P. Clermont.—p. 1569.
- Remarks on Antineoplastic Function of Certain Adrenal Hormones. A. Josseland.—p. 1571.
- *Value of Comparative Study of Serial Electroencephalograms in Etiologic Diagnosis of Various Cerebral Afflictions. S. Thiry.—p. 1572.

Dosage of Isoniazid in Children.—The authors were impressed by the innocuousness of large doses of isoniazid in children. Eighty-four children hospitalized for tuberculous meningitis or simple primary infection) were treated with large doses of isoniazid (40 times between 20 and 30 mg. per kilogram of body weight, and 11 times between 30 and 40 mg. per kilogram of body weight); this treatment lasted for from two to seven months. Clinical tolerance was remarkable, and biological examinations revealed almost no evidence of renal or hepatic involvement, with the exception of six cases of mild disturbance in galactose clearance. These strong doses enable high concentrations of isoniazid to be achieved in the blood. The blood concentration of isoniazid of 2 or 3 mcg. per cubic centimeter for the classic daily dose of 10 mg. per kilogram is raised to 6 to 10 mcg. per cubic centimeter for a daily dose of 20 to 30 mg. per kilogram and vacillates between 10 and 25 mcg. for a daily dose of 40 mg. per kilogram. These elevated doses, which are well tolerated by children, seem to be very useful in serious cases, since only the blood concentrations thus obtained are capable of acting on strains of bacilli that are most resistant.

Serial Electroencephalograms.—The author describes three cases in each of which a study of electroencephalograms taken at intervals of a few days during the course of illness was the decisive factor in establishing a diagnosis of cerebral tumor (in two cases) or of cerebrovascular accident (in one case). This method was previously used by him in the study of cerebral thrombophlebitis, the differential diagnosis of thrombophlebitis and cerebral abscess, and the progressive localization of a diffuent cerebral abscess. It is emphasized that this study of consecutive electroencephalograms must be analyzed

in the light of other clinical findings and information about the patient; on the other hand, electroencephalography is a simple and harmless procedure that has great value in early diagnosis. In these three cases, cerebral arteriography and ventriculography showed no abnormalities, but the diagnoses made on the basis of the electroencephalograms were confirmed at operation in the case of the two cerebral tumors and by response to treatment with vasodilators, anticoagulants, and short waves in the case of the vascular disturbance.

61:1589-1614 (Dec. 5) 1953

- Homeostasis and Rehabilitation of Chronaxia After Shock from Vitamins, Toxic Substances, or Exertion in Sports. G. Mouriquand.—p. 1593.
- *Prevention of Operative Shock by Methonium Compounds in Visceral Surgery: Based on 120 Cases. Du Callar.—p. 1595.

Methonium in Prevention of Operative Shock.—The author's technique is described for the use of controlled hypotension with one of the methonium derivatives in patients undergoing various surgical operations of the viscera. He used the substance pentamethonium bromide (C-5) in conjunction with other neuroplegics—Diparcol (10-[2-diethylaminoethyl]-phenothiazine), procaine, and Phenergan (10-[2-dimethylamino-1-propyl] phenothiazine)—in order to achieve a polyvalent neurovegetative stabilization through multifocal neurovegetative blocking that is effective both centrally and peripherally. This stability is necessary as a supplementary aid to the methonium in blocking the severe reflex to splanchnic irritation. The 120 patients on whom these observations are based had had hysterectomies, gastrectomies, abdominoperineal amputations of the rectum, endothoracic surgery of the lung, esophagus, and heart, and peripheral operations of the face, neck, breast, etc. Vasoplegia and hypotension were moderate when this method was used; the spare in blood loss was evaluated as two-thirds. No postoperative shock was observed in any case, and it is felt that this method of using methonium derivatives yields a significant antishock effect.

Proceedings of Royal Society of Medicine, London

46:991-1082 (Dec.) 1953. Partial Index

- Recurrent Generalized Lymphoreticulosis. R. Clement, B. Duperrat, J. Gerbeaux and others.—p. 1055.
- Toxoplasmosis and Jaundice of the Newborn. M. Lelong, L. T. Vinh, G. Desmonts and D. Thompson.—p. 1056.
- 100 Cases of Child Obesity: Some Psychological Data. R. Laplane and M. Etienne.—p. 1058.
- Functional Glandular Manifestations of Puberty. J. Weill.—p. 1059.
- Genetics of Pyloric Stenosis. M. Lamy, M. C. Pognan and P. Maroteau.—p. 1062.

Semaine des Hôpitaux de Paris

29:3649-3714 (Nov. 20) 1953

- Remarks on So-Called "Periodic Disease." F. Siguiet, M. Zara, J. L. Funck-Brentano and G. Laguerre.—p. 3649.
- *Severe Digestive Disorders Caused by Phenylbutazone. F. Siguiet, M. Zara, L. Perles and others.—p. 3659.
- Diffuse Necrotic Panangitis: New Anatomoclinical Entity? C. Lian and F. Siguiet.—p. 3666.
- Thyroiditis. M. Zara and H. Chimènes.—p. 3677.

Digestive Disorders from Phenylbutazone.—The authors personally saw three patients in whom severe digestive reactions developed subsequent to the administration of phenylbutazone (Butazolidin) as an antirheumatic. In the first patient, there was reactivation of an old duodenal ulcer with hemorrhages; in the second, epigastric pain, severe alimentary vomiting, melena, and hematemesis; and in the third, transient edema of the lower extremities, severe epigastric pain, and probable reactivation of a duodenal ulcer. These cases are consistent with those reported in the literature, and review of them all establishes that phenylbutazone can cause simple reactivation of an ulcer, digestive hemorrhages, digestive perforations, bouts of ulcerous activity representing the evolution of multiple ulcers, and probably even new ulcers. In view of the remarkable similarity between digestive disorders caused by phenylbutazone and those caused by cortisone and corticotropin, the authors feel that the hypothetical mechanism of disturbances following hormone therapy should be kept in mind, namely hypersecretion of hydrochloric acid in the stomach due to adrenocortical stimulation. Of all the other disturbances that

Lancet, London

2:1273-1322 (Dec. 19) 1953

- Gravitational Ulcer. R. B. Wright.—p. 1273.
 Vaginal Bleeding Due to Potassium Permanganate. E. E. Philipp.—p. 1278.
 Treatment of Megaloblastic Anaemias: Relation of Penicillin to Vitamin B₁₂. H. Foy and A. Kondi.—p. 1280.
 *Prevention of Fertilisation by Hyaluronidase Inhibitor. A. S. Parkes.—p. 1285.
 Hirschsprung's Disease with Associated Intestinal Haemorrhage. R. E. Horton and B. Laurance.—p. 1288.
 Acute Hepatic Necrosis: Coma Treated with Sodium Glutamate. C. E. Woodrow, K. Froome and I. H. Lawrence.—p. 1290.
 Bronchial Neoplasm with Myasthenia: Prolonged Apnoea After Administration of Succinylcholine. H. J. Anderson, H. C. Churchill-Davidson and A. T. Richardson.—p. 1291.
 Polymyxin B: An Intrathecal Reaction. R. J. McGill and D. Mendel.—p. 1293.

Prevention of Fertilization by Hyaluronidase Inhibitor.—Parkes shows that although it has become difficult to accept the idea that a bulk supply of hyaluronidase, coming from a mass of spermatozoa, is an essential prerequisite of fertilization, a possibility remains that the approach of a spermatozoon to the zona pellucida is assisted by its own individual supply of the enzyme, which may thus have some role in fertilization in some species. It was rational, therefore, to investigate the effect of decreasing the effective availability of the enzyme, by adding either hyaluronic acid complexes of hyaluronidase inhibitors to the semen before insemination. Apart from any question of application to contraception, the work on the effect of inhibitors is a means of investigating the role of hyaluronidase in fertilization, and perhaps that of other enzymes since the hyaluronidase inhibitors commonly used are far from specific. Parkes reports here the results of experiments on rabbits carried out with a new and powerful inhibitor Rehibin (tri-genticic acid, Compound 21P). Summarizing these experiments the author says that Rehibin, a highly active inhibitor of hyaluronidase, prevents fertilization when added at the rate of about 5 mg. per milliliter of semen in vitro to rabbit semen before insemination. Rehibin has no ordinary spermicidal action in the amounts used, and the effect on fertilization probably depends, at least in part, on its capacity to inhibit hyaluronidase. But this may not be the whole explanation. Attempts to inhibit fertilization by the administration of large amounts of Rehibin orally or by injection gave no reproducible positive results, but absorption of this large-molecule material may well have been negligible.

Leprosy Review, London

24:175-234 (Oct.) 1953

- Leprosy in Anglo-Egyptian Sudan East and Central Africa. R. G. Cochran.—p. 177.
 *The Leprotic Child in Africa. J. R. Innes.—p. 224.

The Child with Leprosy in Africa.—Innes carried out leprosy surveys in East Africa from 1946 to 1951. Most of the data obtained were reported previously. This paper is concerned with 1,492 cases of leprosy in children which were found in the natural or untreated state in a total of 7,072 cases of leprosy of all ages. The term child is used to include all persons of 14 years of age and under. The countries in which these 1,492 cases in children were found comprise Kenya, Tanganyika, Zanzibar and Pemba, Uganda, northern Rhodesia, and Nyasaland. Nearly every African tribe resident in these countries is represented in these children who were not in leprosariums but who came from the homes and villages and who at the time of discovery were living in the same conditions as their siblings who did not have leprosy. The fact that children accounted for 21% of all cases of leprosy indicates that leprosy is a living and continuing entity among these peoples. The sex ratio was 4:3, with males predominating. Analysis of the ages indicated a great increase between 5 and 14, which suggests that many must have sustained their infection at an early age. There were no indications that leprosy was acquired by one or a few momentary contacts, but rather by living in daily, and more especially nightly, contact with persons with leprosy in the family group. Leprosy in children and the young is mainly a problem of environment and living conditions. Protection of children from leprosy is an important key to the eradication of leprosy from a community. Leprosy in children

seems to begin either as a frank tuberculoid or lepromatous manifestation. Polyneuritic lesions, whether alone or complicating the main types, are considerably less frequent in these children. Although leprosy may be evanescent in childhood, the author believes that in a great proportion of the children leprosy would progress and cause infection of others. There is a lack of adequate accommodation in these countries for all existing cases of leprosy, but special attention to children is recommended as one of the most economic and fruitful forms of attack on the leprosy problem.

Medical Journal of Australia, Sydney

2:773-808 (Nov. 21) 1953. Partial Index

- "Q" Fever in South Australia: II. Surveys of Human and Bovine Sera. J. Stokes.—p. 778.
 Modern Treatment of Benign Prostatic Obstruction. I. Hamilton.—p. 780.
 Some Aspects of Anaesthesia in Abdominal Surgery. J. F. McCulloch.—p. 786.
 Anaesthesia in Abdominal Surgery: Mutual Problems of Anaesthetist and Surgeon. V. M. Coppleston.—p. 787.

2:809-840 (Nov. 28) 1953. Partial Index

- Virology as Independent Science. F. M. Burnet.—p. 809.
 Fungal Infections in Hospital Practice. E. B. Durie and S. Brown.—p. 813.
 South-West Wind. C. Sands.—p. 814.
 *Problems in Fertility and Sterility Due to Ectopic Pregnancy: Study of 259 Cases. A. Grant.—p. 817.
 Penicillin Sensitivity. P. W. Farmer.—p. 820.

Fertility and Sterility After Ectopic Pregnancy.—It is commonly believed that the occurrence of an ectopic gestation will in no way prejudice a woman's chances of producing a living child later on. In order to answer several questions on the relationship between ectopic pregnancy and sterility, Grant made studies on 259 women who had had ectopic pregnancy and who had been observed at two different departments of a Sydney women's hospital. The studies on these women and reports in the literature clearly show that the occurrence of an ectopic pregnancy is a major accident for the patient who wishes to produce a family, because, at the best estimate, only one-third of such patients will ever succeed in having a live baby, and in many groups the obstetric prognosis is much worse. Some investigators found that only one in every six of such women had a live baby during the rest of their life. Inquiry into the causes of this sterility reveals that it is located in the Fallopian tubes in 67% of the cases reviewed here and that most likely the tubal factor is involved in 81% of the cases. The incidence of ectopic gestation in patients attending a sterility clinic is seven times the usual incidence, and the frequency of ectopic gestation in patients treated for tubal blockage by high-pressure insufflation is 25 times that found among other pregnant women. The alternatives are to do nothing or to operate. However, tubal plastic operations are not yet very successful. The damage to the residual tube in most of the patients who have had an ectopic pregnancy appears to have been the result of salpingectomy in 50% of cases. The other 50% suffered bilateral tubal damage at the time of the original septic lesion in the pelvis, which preceded the occurrence of the ectopic gestation. No patient has been adequately treated for an ectopic pregnancy until her one residual tube has been proved patent by subsequent insufflation with carbon dioxide or by salpingography with the use of an aqueous and nonirritating medium.

Minerva Ginecologica, Turin

5:549-588 (Sept. 15) 1953

- Theoretical Assumption and Experimental and Clinical Studies on Artificial Hypothermia in Obstetrics and Gynecology. G. Valle, U. Narducci, G. Ferraris and G. Massone.—p. 549.
 Hypercholesteremia of Pregnancy and Zimmerman's Reaction. E. Solla.—p. 569.
 Visualization of Placenta by Aortography. P. Spanio and C. Nejedly.—p. 573.
 *Postoperative Disease and Corticoadrenal Function. G. Ferraris and G. Massone.—p. 579.

Corticoadrenal Function in Postoperative Disease.—To test the role of the adrenals in the causation of the so-called postoperative disease, the authors studied the circulating eosinophils, the urine content of uric acid and creatinine, and the urinary excretion

of the 17-ketosteroids in 17 women in whom interventions for gynecologic disorders had been performed at the Novara school of obstetrics. A marked eosinopenia, which was paralleled by an increased ratio between uric acid and creatinine, was found immediately after the operation in most of the patients; the changes in the 17-ketosteroids were not so marked and constant, but their excretion was slightly increased. These alterations are ascribed to an alarm phase of the general adaptation syndrome of Selye. The surgical trauma, which stimulates the adrenal cortex to a degree proportional to its length rather than its gravity, determines a greater peripheral need for corticoids, the blood level of which is, therefore, decreased; the hypophysis reacts by elaborating a greater amount of corticotropin; and this in turn stimulates the adrenal to a greater production of corticoids. When the stress ceases, the hyperactivity of the hypophyseal-adrenal system decreases and these blood and urine tests are again normal. In the authors' patients the eosinophils increased to above the preoperative values only by the eighth day, whereas the acid uric-creatinine ratio had already become normal by the 24th or 48th hour. Complications of the postoperative course delayed this return to normal. The authors conclude that the presence of a marked eosinopenia and an increased ratio between acid uric and creatinine within the first 24 postoperative hours suggest that the function of the patient's hypophyseal-adrenal system is good and the neuroendocrine defense reaction to the intervention will be efficient. An immediate postoperative marked eosinopenia is sufficient to eliminate the hypothesis of corticoadrenal deficiency in cases of shock. On the other hand, an increased number of eosinophils and irrelevant changes in the acid uric-creatinine ratio immediately after the intervention suggest adrenal insufficiency and possibly a bad prognosis. Of prognostic value is also a premature or a late return of these blood and urine alterations to the preoperative values. These blood and urine determinations have postoperatively the same prognostic value that Thorn's test with corticotropin has preoperatively.

Presse Médicale, Paris

61:1569-1588 (Nov. 28) 1953

- *Dosage of Isoniazid (Isonicotinic Acid Hydrazide) In Children. R.-A. Marquézy, C. Bach and J.-P. Clermont.—p. 1569.
- Remarks on Antineoplastic Function of Certain Adrenal Hormones. A. Josseland.—p. 1571.
- *Value of Comparative Study of Serial Electroencephalograms in Etiologic Diagnosis of Various Cerebral Afflictions. S. Thiry.—p. 1572.

Dosage of Isoniazid in Children.—The authors were impressed by the innocuousness of large doses of isoniazid in children. Eighty-four children hospitalized for tuberculosis (tuberculous meningitis or simple primary infection) were treated with large doses of isoniazid (40 times between 20 and 30 mg. per kilogram of body weight, and 11 times between 30 and 40 mg. per kilogram of body weight); this treatment lasted for from two to seven months. Clinical tolerance was remarkable, and biological examinations revealed almost no evidence of renal or hepatic involvement, with the exception of six cases of mild disturbance in galactose clearance. These strong doses enable high concentrations of isoniazid to be achieved in the blood. The blood concentration of isoniazid of 2 or 3 mcg. per cubic centimeter for the classic daily dose of 10 mg. per kilogram is raised to 6 to 10 mcg. per cubic centimeter for a daily dose of 20 to 30 mg. per kilogram and vacillates between 10 and 25 mcg. for a daily dose of 40 mg. per kilogram. These elevated doses, which are well tolerated by children, seem to be very useful in serious cases, since only the blood concentrations thus obtained are capable of acting on strains of bacilli that are most resistant.

Serial Electroencephalograms.—The author describes three cases in each of which a study of electroencephalograms taken at intervals of a few days during the course of illness was the decisive factor in establishing a diagnosis of cerebral tumor (in two cases) or of cerebrovascular accident (in one case). This method was previously used by him in the study of cerebral thrombophlebitis, the differential diagnosis of thrombophlebitis and cerebral abscess, and the progressive localization of a diffuent cerebral abscess. It is emphasized that this study of consecutive electroencephalograms must be analyzed

in the light of other clinical findings and information about the patient; on the other hand, electroencephalography is a simple and harmless procedure that has great value in early diagnosis. In these three cases, cerebral arteriography and ventriculography showed no abnormalities, but the diagnoses made on the basis of the electroencephalograms were confirmed at operation in the case of the two cerebral tumors and by response to treatment with vasodilators, anticoagulants, and short waves in the case of the vascular disturbance.

61:1589-1614 (Dec. 5) 1953

- Homeostasis and Rehabilitation of Chronaxia After Shock from Vitamins, Toxic Substances, or Exertion in Sports. G. Mouriquand.—p. 1593.
- *Prevention of Operative Shock by Methonium Compounds in Visceral Surgery: Based on 120 Cases. Du Callar.—p. 1595.

Methonium in Prevention of Operative Shock.—The author's technique is described for the use of controlled hypotension with one of the methonium derivatives in patients undergoing various surgical operations of the viscera. He used the substance pentamethonium bromide (C-5) in conjunction with other neuroplegics—Diparcol (10-[2-diethylaminoethyl]-phenothiazine), procaine, and Phenergan (10-[2-dimethylamino-1-propyl] phenothiazine)—in order to achieve a polyvalent neurovegetative stabilization through multifocal neurovegetative blocking that is effective both centrally and peripherally. This stability is necessary as a supplementary aid to the methonium in blocking the severe reflex to splanchnic irritation. The 120 patients on whom these observations are based had had hysterectomies, gastrectomies, abdominoperineal amputations of the rectum, endothoracic surgery of the lung, esophagus, and heart, and peripheral operations of the face, neck, breast, etc. Vasoplegia and hypotension were moderate when this method was used; the spare in blood loss was evaluated as two-thirds. No postoperative shock was observed in any case, and it is felt that this method of using methonium derivatives yields a significant antishock effect.

Proceedings of Royal Society of Medicine, London

46:991-1082 (Dec.) 1953. Partial Index

- Recurrent Generalized Lymphoreticulosis. R. Clement, B. Duperrat, J. Gerbeaux and others.—p. 1055.
- Toxoplasmosis and Jaundice of the Newborn. M. Lelong, L. T. Vinh, G. Desmonts and D. Thompson.—p. 1056.
- 100 Cases of Child Obesity: Some Psychological Data. R. Laplane and M. Etienne.—p. 1058.
- Functional Glandular Manifestations of Puberty. J. Weill.—p. 1059.
- Genetics of Pyloric Stenosis. M. Lamy, M. C. Pognan and P. Maroteau.—p. 1062.

Semaine des Hôpitaux de Paris

29:3649-3714 (Nov. 20) 1953

- Remarks on So-Called "Periodic Disease." F. Siguier, M. Zara, J. L. Funck-Brentano and G. Lagrue.—p. 3649.
- *Severe Digestive Disorders Caused by Phenylbutazone. F. Siguier, M. Zara, L. Perles and others.—p. 3659.
- Diffuse Necrotic Panangitis: New Anatomoclinical Entity? C. Lian and F. Siguier.—p. 3666.
- Thyroiditis. M. Zara and H. Chimènes.—p. 3677.

Digestive Disorders from Phenylbutazone.—The authors personally saw three patients in whom severe digestive reactions developed subsequent to the administration of phenylbutazone (Butazolidin) as an antirheumatic. In the first patient, there was reactivation of an old duodenal ulcer with hemorrhages; in the second, epigastric pain, severe alimentary vomiting, melena, and hematemesis; and in the third, transient edema of the lower extremities, severe epigastric pain, and probable reactivation of a duodenal ulcer. These cases are consistent with those reported in the literature, and review of them all establishes that phenylbutazone can cause simple reactivation of an ulcer, digestive hemorrhages, digestive perforations, bouts of ulcerous activity representing the evolution of multiple ulcers, and probably even new ulcers. In view of the remarkable similarity between digestive disorders caused by phenylbutazone and those caused by cortisone and corticotropin, the authors feel that the hypothetical mechanism of disturbances following hormone therapy should be kept in mind, namely hypersecretion of hydrochloric acid in the stomach due to adrenocortical stimulation. Of all the other disturbances that

can be caused by phenylbutazone (edema, cutaneous manifestations, blood disorders, etc.), none seems to be as important as the digestive ones. It is emphasized, however, that in spite of their practical and theoretical interest, the actual frequency of these disorders must not be overestimated.

29:3837-3882 (Dec. 2) 1953

*Indications for and Results of Cortical Excision in Temporal Epilepsy: Based on 20 Operations. D. Petit-Dutailis, J. Christophe, B. Pertuiset and C. Dreyfus-Brisac.—p. 3838.

Two Cases of Epilepsy with Bitemporal Electric Projection. J. Christophe, C. Blanc and L. Rouvès.—p. 3847.

Technique and Interpretation of Electroencephalography. C. Dreyfus-Brisac, B. Pertuiset, H. Fischgold and D. Petit-Dutailis.—p. 3852.

Some Relationships Between Electroencephalography and Respiration. H. Fischgold, Z. Drohocki and G. Arfel-Capdevielle.—p. 3862.

Excision of the Temporal Cortex for Epilepsy.—Of 38 patients without cerebral tumor who were operated on for epilepsy, 25 had epileptic manifestations shown anatomically and physiologically to originate in the temporal cortex. Five patients in whom the operation was limited to simple exploration were excluded from this series. Clinical and electroencephalographic criteria of localization were used; they proved to be more useful than roentgenographic criteria. Abnormalities of the regions in question were noted macroscopically at operation in 5 patients; in 4 of these and in 11 of the 15 remaining ones, lesions were discovered microscopically. There were no operative deaths in the entire group of 38 patients. Only 16 of the 20 who had temporal cortical excision have been followed up long enough to be included in this report (more than six months). Of these, nine had excellent results, with no epileptic signs occurring after operation; two had partial results, major epileptic phenomena being replaced by minor ones; and five were not benefited, i. e., the same types of epileptic manifestations as had been noted in them before surgery were also seen after it, regardless of whether or not the frequency of the attacks had abated. Some of the authors' conclusions follow. 1. The age and sex of the patient, the length of duration of epilepsy before surgery, and the existence or nonexistence of a macroscopically or even histologically observable lesion have no influence on the postoperative results. 2. At present, one cannot count on good results in temporal cortical epilepsy in which the attacks begin with aphasia. In cases in which this disorder is a secondary manifestation, cortical excision rectifying the primary disorder should interrupt the orientation of the attack toward the language zone. 3. The uncus must be removed when the initial manifestations are of an olfactory nature; its removal is advised in cases in which visceral phenomena are a factor or in which there are olfactory secondary manifestations. 4. The postoperative course as judged by the first 15 days and the examinations done during this period are of no value in the eventual prognosis, and failures are often judged too soon. The authors have had patients with eventual remissions who had epileptic attacks in the first two months after operation. 5. Seizures may occur during the first six postoperative months in connection with pyrexias of diverse origins. They are without prognostic significance and probably represent vasomotor percussions on the cortical scar. 6. The authors are in disagreement with authors such as Obrador who consider the addition of generalized epileptic manifestations to purely temporal cortical ones a contraindication to temporal cortical excision. 7. Excisions limited to gyrectomy give poor results. The entire epileptic temporal cortex must be considered as a single functional tumor. This concept seems to explain the alternation of various types of temporal cortical manifestations seen in many patients with epilepsy of temporal cortical origin. 8. The delta seen on the posterior bank of the excision after lobectomy appears to be of little importance. It seems to be futile to attempt to make these anomalies disappear, unless they are accompanied by rapid potentials of high voltage. 9. Electric coagulation should not be used in performing the excision. The excision must be complete. The authors attempted to prevent adhesions of the cortex and dura mater by laying an amniotic membrane between the two. They attribute the absence in their patients of new forms of disorders that could be caused by cortical excision itself to these technical details.

Ugeskrift for Laeger, Copenhagen

115:1683-1722 (Nov. 12) 1953

Monobromated Acetic Acid Dangerous Food Additive: General Remarks on Food Additives and Danger in Their Use. K. O. Möller.—p. 1683.

Rupture of Laparotomy Wound. P. Paaby.—p. 1689.

*Mesantoin Treatment of Epilepsy. V. Fuglsang-Frederiksen.—p. 1693.

Funnel Chest in School Children: Frequency and Roentgenologic Findings. J. T. Kristensen and H. Marqvard.—p. 1696.

Mesantoin in Treatment of Epilepsy.—Of Fuglsang-Frederiksen's 67 patients—42 with idiopathic epilepsy, 19 with symptomatic epilepsy, and 6 with doubtful epilepsy—treated with Mesantoin (3-methyl-5,5-phenylethyl hydantoin), 25 were previously untreated or insufficiently treated and 42 had received regular treatment. The average observation time was 15 months. Because of the danger of toxic side-effects treatment with Mesantoin was started with a dose of 5 to 10 cg. At suitable intervals, under constant control of the blood, the dose was increased by 10 cg. at a time. If the patient had been given other antiepileptic agents, the dose of the earlier agent was as a rule decreased simultaneously with the increase in the Mesantoin dosage. The maximum Mesantoin dosage was 90 cg.; the average dosage was 35 cg. Improvement occurred in 47 patients, of whom 11 were free from attacks, 22 considerably improved, and 14 moderately improved; 11 patients were unchanged, 3 were worse, and in 6 the result could not be evaluated. Twenty-nine of the 42 patients treated regularly before they were given Mesantoin and 18 of the 25 previously untreated were improved. Good results appeared oftener in symptomatic epilepsy than in idiopathic epilepsy; in doubtful epilepsy the results were poor. Improvement was independent of the duration of the disorder. There were toxic reactions in only one patient; in a patient treated with Mesantoin for three months, the leukocyte count steadily decreased to 1,880, without other abnormal blood changes, and on withdrawal of the Mesantoin, the leukocyte count gradually returned to normal. Focal seizures and petit mal and psychomotor attacks seemed to react more favorably to Mesantoin than grand mal seizures.

Zeitschrift für Kreislaufforschung, Darmstadt

42:801-880 (Nov.) 1953. Partial Index

Relationship of Unipolar and Bipolar Leads in Electrocardiogram. B. Fumagalli.—p. 801.

Changes in Electrocardiogram Made After Arising from the Reclining Posture and Under the Influence of Bürger's Compression Tests. D. Michel.—p. 809.

Possibility of Determining Mean Pressure in an Arterial Pressure Curve. E. Nusser and D. G. Wyatt.—p. 817.

Fiber Block: Investigation of Electrokymographic Changes That Accompany Damage to Cardiac Muscle Fiber. V. Alzamora-Castro, R. Abugattas, G. Battilana and others.—p. 825.

Simple Modification of Wilson's Central Electrode. P. Rieger.—p. 838.

Circulatory Changes During Müller's Suction Experiment. K. Mechelke and E. Nusser.—p. 842.

*Roentgenkymographic and Phonocardiographic Investigations on Hemodynamics of Left Auricle in Mitral Stenosis. B. Schlegel and P. Schölmerich.—p. 848.

Hemodynamics of Left Auricle in Mitral Stenosis.—Roentgen kymographic analyses of the auricular movements and phonocardiographic records of the heart sounds were made in four patients with pure mitral stenosis. The records were made while the patient was standing or reclining (with head lower). The following observations were made. 1. A decided protodiastolic ventral movement of the contour of the left auricle in the retrocardiac space suggests a slight stenosis of the mitral ostium. 2. The severer the stenosis, the closer the kymographic record of the protodiastolic ventral movement (E-F) approaches the plateau form, and it actually assumes a plateau shape in extreme cases. 3. Movement of the auricular contour dorsally during the diastole suggests a simultaneous mitral insufficiency. 4. By lowering the head, these observations can be clarified by increasing the venous inflow. 5. Simultaneous recording of the cardiac sounds permits a comparative estimation of the extent of the protodiastolic and presystolic evacuation of the auricle in various postures. The combination of these two procedures signifies further progress in being able to estimate the conditions of inflow and outflow in the left auricle.

BOOK REVIEWS

Peripheral Nerve Injuries: Principles of Diagnosis. By Webb Haymaker, M.D., Chief, Neuropathology Section, Armed Forces Institute of Pathology, Washington, D. C., and Barnes Woodhall, M.D., Professor of Neurosurgery, Duke University School of Medicine, Durham, North Carolina. Second edition. Cloth, \$7. Pp. 333, with 272 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; W. B. Saunders Company, Ltd., 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

War, with its mutilating wounds, provides a much greater opportunity to study injuries to the peripheral nerves than does civil life. From such rich clinical experience the authors have written a monograph on the normal anatomy and the methods of recognizing dysfunction of the peripheral nerves. The first edition of this book, published during World War II, was a useful and popular guide for medical officers of the armed services. From further experiences in the treatment of military and civilian nerve wounds in the past decade, the authors have accumulated and incorporated new information in this second edition. Thus the subjects of pain, contractures, correlation of lesions with clinical evidences of nerve injury, and newer knowledge of the anatomical arrangement of the peripheral nerves are elaborated. An up-to-date list of references is appended.

The authors describe the motor, sensory, autonomic, and reflex changes resulting from injury of the roots, plexuses, and peripheral nerves in a concise manner. The anatomic aspects of the subject are clearly depicted by line drawings, and the clinical findings are shown by excellent photographs. If one were to criticize the monograph, perhaps the brevity with which certain subjects are discussed might be mentioned. Thus, the technical examination of injuries of peripheral nerves by electromyography, intraneural stimulation, and electrical examination—which some maintain were the most important developments in peripheral nerve injuries to come out of World War II—is covered in three pages of text. The conciseness may have led to some lack of clearness, for the correlation between pathological changes and the five clinical syndromes described as the result of nerve injury are not sufficiently documented to seem valid. Only rare errors of fact are noted; perhaps the most obvious is the statement that the sympathetic innervation of the upper extremity is derived from preganglionic fibers taking origin from the third to sixth thoracic nerves and perhaps from the second and seventh. There is good evidence that the first thoracic nerve and probably the eighth cervical also contribute to the sympathetic innervation of the arm. But these defects are minor and detract little from the general excellence of the monograph, which is well written, authoritative, and up-to-date. It should be a valuable reference book for all students, and a constant companion for physicians and surgeons who frequently treat traumatic cases.

Applied Anatomy and Kinesiology: The Mechanism of Muscular Movement. By Wilbur Pardon Bowen, M.S. Seventh edition revised by Henry A. Stone, M.S., Supervisor, Department of Physical Education, University of California, Berkeley. Cloth, \$5.50. Pp. 462, with 261 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This attractively bound and profusely illustrated book gives a detailed account of muscular activity and the analysis of skills, especially in athletics. In addition to fundamental information on the theoretical mechanics, anatomy, physiology, and chemistry of muscular movement, the book suggests topics for reading and problems for experimental investigation that should be inspiring to students of the subject. Teachers who write textbooks sometimes comfort themselves with the belief that classes are critical and that nothing escapes the eye of students. Errors and obscurities found in a seventh edition unsettle this belief. An example is the exposition of Bernoulli's principle (page 368), which is obscure if not erroneous; others are the mutilation of references in foreign languages (page 151)

and minor errors like the phrase "this phenomena" (page 368). The comparison of "good" posture in a well-fed subject with that seen in an asthenic, poorly developed subject (page 327) will impress some as unfair and misleading, and the objection to "use of the arms when lowering oneself into a chair" (page 438) seems odd. The bibliographies at the end of each chapter appear not to include reference to the magnificent "Plastische Anatomie" of Mollier, which ought to be better known in this country, but they do include references to some dubious publications. These are minor flaws that can be corrected easily in future editions. The book as a whole can be recommended highly and will interest every medical reader.

Fundamentals and Applications of Clinical Oximetry. By Dr. W. G. Zijlstra. With foreword by Dr. R. Brinkman, Professor of Biochemistry, University of Groningen. Van Gorcum's medical library no. 117. Second edition. Cloth, 12.50 florins. Pp. 150, with 81 illustrations. Van Gorcum and Comp. N.V., Brink 10-12, Assen, Holland, 1953.

This book offers a wealth of information about instruments and methods used to determine the ratio of the amount of oxygen that the blood contains at any given time to the amount it can contain under certain standard conditions. The usefulness of the book to most physicians, even those active in clinical research, is limited by altogether needless obscurities. The misuse of abbreviations that characterizes so many recent books contributes to the difficulty here. For instance, the abbreviation "p. o. s." is not to be found in medical dictionaries, yet in this book it is used even in the table of contents. Since the book lacks an index, which might have been helpful, the reader's suspense is not relieved until page 11, on which he is told that the term means "percentage oxygen saturation." There is also no reason to use the abbreviation "E. E. G." if "electroencephalograph" is to be used only once in the whole book. In the same way, mathematics should be either clear and accurate or omitted entirely. When the author uses the words "function" and "integration," the conscientious student loses time deciding whether these words have their mathematical or their entirely unrelated physiological meanings. Primes (page 14) and periods (page 15) are sprinkled about in the formulas without evident reason, and the word "constant" (page 9) is used in a way that must be surprising to mathematicians. The neologism "isobestic," not to be found in recent textbooks and dictionaries, is defined on page 16. If the reader misses it or fails to retain it, more time is lost in locating it again and in wondering whether the word is restricted to the narrow sense assigned to it by the author or has a broader meaning. The text breaks off abruptly on page 139, and the reader is left to consider whether the few patients whose case histories are given were benefited by the elaborate machinery used to study the condition of their hemoglobin. The anti-scientific forces in modern society cannot be ignored, and not everyone is convinced of the value of research for the sake of research. A few pages of discussion and summary could be inspiring to younger scientists, would quicken the reader's appreciation of the vast amount of work represented in the tables and graphs, would justify it in the eyes of skeptics in other fields, and would certainly increase the value of the book to potential medical readers.

Insuring Special Class Risks: A Compend for the Life Insurance Agent. By Donald E. Yochem, B.S., M.Sc., M.D., Medical Director, Farm Bureau Life Insurance Company, Columbus, Ohio. Cloth, \$2.25. Pp. 77, with 2 illustrations. Insurance Research & Review Service, Inc., 123 W. North St., Indianapolis 9, 1953.

This book explains in nontechnical terms the reasons why some applicants for life insurance are required to pay premiums higher than those that are predicated on standard mortality tables. Many applicants for life insurance who were considered uninsurable several years ago are accepted today. This is one of the many benefits resulting from advances in medical science. Suggesting the term "special class risks" in

lieu of "substandard risks," the author outlines several of those physical impairments that necessitate special premium consideration. The five chapters cover the selection of risks, preliminary appraisals of doubtful risks, medical and non-medical applications, the viewpoints of clinical and life insurance medicine, and impairments and their effect on ratings and insurability. The purpose of special class ratings is to help applicants get needed insurance protection on the most favorable basis rather than to deny coverage. This problem is of interest to increasing numbers as evidenced by the estimate that over 12 billion dollars of extra-risk life insurance is now in force on more than 5 million policies. Although the author designates this book as a compend for the life insurance agent, the subject is of interest to field and home office insurance personnel (including medical examiners) as well as to those physicians who are interested in the subject of substandard life insurance risks.

Parsons' Diseases of the Eye. By Sir Stewart Duke-Elder, K.C.V.O., Ph.D., M.D., Surgeon-Oculist to Queen. Twelfth edition. Cloth. \$8. Pp. 606, with 487 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1954.

Long a standard textbook for undergraduate medical students and general practitioners in Great Britain, this treatise has never been widely distributed in the United States. In this new edition, revised and largely rewritten by Duke-Elder, the master's touch is evident in the clear, concise phraseology. Adequately illustrated with excellent drawings and photographs, some in color, the book may be studied and read with pleasure and profit not only by the medical student and general practitioner but by the neophyte in ophthalmology as well. Prepared apparently with a view of the American market, the book makes minimal mention of purely British pharmacological products. Fully up-to-date on modern therapy, it also includes discussions of some of the more recent advances in the physiology of the eye. For purely undergraduate teaching the section on surgery might have been further condensed or eliminated and some other portions of the book abbreviated, but it may be that these will stimulate the exceptional student or serve as a reference work for the practitioner who is not an ophthalmologist. There has been a recent increase in the number of textbooks on ophthalmology at this level. This new edition of a well-established book will prove a forceful competitor in the field.

Die Zuckerkrankheit: Leitfaden für Studierende und Ärzte. Von Prof. Dr. Ferdinand Bertram, Chefarzt der medizinischen Klinik des allgemeinen Krankenhauses Langenhorn, Hamburg. Fourth edition. Cloth. 19.80 marks. Pp. 175, with 25 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O; American agent—Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

In the six years since the last edition of this guidebook for students and practicing physicians, new ideas and new concepts have especially affected our attitude toward pathogenesis, treatment, and prognosis in diabetes. This provocative text attempts to relate these advances to present-day practice. The first half of the book is devoted to basic knowledge regarding metabolism and especially anabolic metabolism. A summary of the highly complicated chemistry of carbohydrate metabolism is well described, with special reference to the regulation of the blood sugar level. Experimental diabetes and the newer data obtained from the study of the anterior pituitary and adrenal secretions are well presented. Particular stress is placed on the studies of the alpha cells in the islands of Langerhans. Illustrations in the form of pathological sections or clinical features are notably few.

Diabetic retinitis and glomerulosclerosis are regarded as unrelated to the severity of diabetes or its treatment but dependent only on its duration. This point of view gives little weight to the increasing evidence that these lesions, as well as the premature capillary and arteriolar manifestations of diabetes, are much more frequent in the severe diabetes of young patients than in the mild diabetes of middle-aged patients. The importance of control of diabetes is not adequately presented. Among the complications presented are pregnancy,

gangrene, infection, and coma. A special classification is given to cardiovascular coma and renal coma. It is refreshing to note the author's emphasis on the diet as the fundamental cornerstone of all diabetic treatment. He emphasizes that the diet should be relatively high in carbohydrate and limited in fat at all ages. In adults the average carbohydrate in the daily diet is 250 gm., and in children 250 to 350 gm. of carbohydrate are prescribed with fat in amounts varying from 60 to 80 gm. The provision of a diet rich in vitamins and in basic minerals is important. Insulin is to be prescribed for all children. Some authors speak of 50 to 60% of diabetic patients receiving insulin. Bertram notes that 85% of the patients treated in the Joslin Clinic receive insulin and that in his own practice 80% of his patients are treated with insulin. Absolute indications include coma and precoma, emergencies such as acute infections and operations, and patients in whom, with dietary treatment alone, satisfactory adjustment does not occur. He notes differences in the treatment of coma in different clinics and prefers the early use of glucose. In this respect, he has omitted reference to some of the recent reports (notably the New Haven studies) indicating certain dangers from disturbance in osmotic equilibrium produced by this treatment. This volume may be read with profit by any physician interested in present-day treatment of diabetes.

Modern Trends in Diagnostic Radiology (Second Series). Edited by J. W. McLaren, M.A., M.R.C.P., F.F.R., Radiologist, X-Ray Department, St. Thomas's Hospital, London. Cloth. \$18. Pp. 413, with 359 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

An interesting series of articles on new or revised methods of roentgenologic diagnosis is presented in this book by some of the world's leading radiologists. There are chapters on recent designs in radiological apparatus, protection in diagnostic radiology, volume doses sustained by the patient in diagnosis, and the place of radiology in research. There are several articles on contrast angiography and arthrography, bringing many of the new developments in these fields up to date. Certain aspects of lesions of the small and large intestine, of the urinary tract, and of the pancreas are reviewed. There are some excellent chapters on cerebral angiography, pneumoencephalography, and myelography. After a chapter on hysterothyrography in cancer of the uterus, the volume terminates with a section on the law relating to the practice of radiology. The first volume of this series appeared five years ago, and this (the second) maintains the high standards then set. It should be enjoyed by clinical radiologists.

Clinical Management of Behavior Disorders in Children. By Harry Bakwin, M.D., Professor of Clinical Pediatrics, New York University, and Ruth Morris Bakwin, M.D., Associate Professor, Clinical Pediatrics, New York University, New York. Cloth. \$10. Pp. 495, with 14 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; W. B. Saunders Company, Ltd., 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

This volume is designed as a practical textbook and guide not only for the physician but also for professional workers in the field of child psychology. The authors have kept in touch with all new work in the field and treat the material in a competent manner. The language is simple and direct. The first chapters are devoted to a description of normal growth and development. The behavior disorders discussed are those due to all causes—whether chronic disease, physical disability, deviation from the average mentality, developmental aberration, emotional distress, or other factors. Common problems, such as eating habits, enuresis, thumb-sucking, and difficulties of adolescence, are included, as well as many disturbances less often encountered. The diagnostic section contains detailed material on history-taking, interviewing, examination, drawing tests, and projective techniques. The authors follow a common sense approach with the inclusion of a minimum of theoretical material. The arrangement of material makes it easy to locate topics, and the index is adequate. There is an excellent bibliography at the end of each section. The volume is most attractive and readable. There is a minimum of typographical errors. This book can be recommended.

Hypertensive Diseases: Causes and Control. By Henry A. Schroeder, M.D., F.A.C.P., Associate Professor of Medicine and Director, Hypertension Division, Department of Internal Medicine, Washington University School of Medicine, St. Louis. With contributions from Gregory S. Gressel, M.D., Dean F. Davies, Ph.D., M.D., H. Mitchell Perry, Jr., M.D., and Donald F. Gibbs, M.B.Ch.B., M.R.C.P. Cloth. \$10. Pp. 610, with 167 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This impressive volume is written in a clear and forceful style, and the material is well arranged. The book aims to be a comprehensive survey of the mechanism and management of hypertension to guide the practitioner's thought and action. Unfortunately for this purpose the survey, while extensive, is at times too selective. It centers unduly around the author's views and experiences with no proportionate regard or evaluation of the views of others. The author's reason for doing this is that he aims deliberately to be provocative. This is of no concern, however, from the practitioner's point of view, since the practitioner will often be at a loss to know what is instructive and what he should be provoked about. Possibly some format like an Eugene O'Neill play in which conscious utterances and unconscious deliberations are clearly delimited might be helpful. The book lacks balance and loses the value that a more objective statement might have had. This does not detract from its stimulation to the specialist.

For example, few would agree that sulfhydryl-containing substances are specifically antipressor or that the mystery of biogenesis of renal hypertension lies in the nature of the action of 1-hydrazinophthalazine. The term hyphex for combined treatment with hydrazinophthalazine and hexamethonium is ingenious and convenient but has a strong proprietary air that puts it in questionable taste. The claim that this treatment is the "first effective and specific method" for the treatment of hypertension is not generally admitted. To the reader willing and able to select and balance the points of view that are presented, the book will represent a useful clarification of some aspects of the field, but most readers will find themselves even more at a loss than before.

Physiological Acoustics. By Ernest Glen Wever and Merle Lawrence. Cloth. \$10. Pp. 454, with 148 illustrations. Princeton University Press, Princeton, New Jersey; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1954.

This book, written by two distinguished leaders of research on hearing, concerns itself with the ear as an acoustic instrument. The first three chapters consider the anatomy of the ear, the physical nature of sound, and the methods that have been employed for the study of auditory processes, thus bringing into focus the problem of the basic function of the middle ear mechanism. Special attention is given to a formulation of the principles governing the operation of the middle ear as a mechanical transformer, to the problem of how energy in the form of aerial waves is effectively used by the ear, and to the question of distortion in the ear. Two chapters are devoted to derangements of the conductive mechanism and the forms of deafness that result, special attention being paid to otosclerosis. Discussion of various topics is presented systematically, and existing facts and more credible opinions reviewed critically. Many results represent investigations carried out by the authors over a period of years. Some of the recent experiments, designed to answer questions arising during the writing of the book, are reported for the first time. This book should appeal greatly to all serious students of the ear.

Health Services for the Child. By Edward R. Schlesinger, M.D., M.P.H., Associate Director of Medical Services, New York State Department of Health, Albany. Foreword by Herman E. Hilleboe, M.D. McGraw-Hill Series in Health Science, Amos Christie, M.D., consulting editor. Cloth. \$7.50. Pp. 403, with 12 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, 1953.

The author indicates that the mental, physical, emotional, and spiritual needs of the child must be met if we are to furnish satisfactory health services for the child. He describes the general problems to be met, as well as special ones such as mental retardation and cerebral palsy, and describes how best to meet these problems. The field of maternal and child health, the factual description of the development of various services, and the way in which the resources of the home, medical and nursing skills, school contributions, special training, and public

health support can be made available are well described. An adequate bibliography is included. The subject matter is presented in a clear and easily readable manner. The book is highly recommended to all workers in any part of the field of child health care. Voluntary help and facilities of governmental agencies at all levels from local to national are clearly described. Ex-President Hoover's "Children's Charter" is quoted in its entirety, and the author accurately reports that this conference "in 1930 represents the high water mark of White House conferences."

Pediatric Gynecology with Sections on Urology and Proctology. By Goodrich C. Schauffler, M.D., Assistant Clinical Professor of Obstetrics and Gynecology, University of Oregon Medical School, Portland. Third edition. Cloth. \$7.50. Pp. 318, with 76 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1953.

This new edition of a useful text in this special field is timely and brings up-to-date information. The problems peculiar to the female child during growth, puberty, and adolescence have received more careful consideration in this edition. The various chapters consider the anomalies, diseases, and physiological alterations of the external and internal genital organs. A chapter on embryology by Dr. G. Gordon Roberts has been added, pediatric urology is discussed by Dr. Clarence B. Hodges, and the considerations for surgery of children are discussed by Dr. C. W. Brunkow. There are chapters devoted to the social service and medicolegal aspects of this special phase of gynecology. Those who have read the second edition of this book will welcome the new one.

Infrared Absorption Spectra of Steroids: An Atlas. By Konrad Dobriner, E. R. Katzenellenbogen and R. Norman Jones. Preface by C. P. Rhoads. Cloth. \$11.50. Pp. xlv, with 308 charts. Interscience Publishers, Inc., 250 Fifth Ave., New York 1; 2a Southampton Row, London, W.C.1, 1953.

This atlas contains not only the infrared absorption spectra of the steroid hormones and their derivatives and metabolites but also a number of representative curves of bile acid esters, cardiac aglycones and steroid alcohols, alkaloids, and sapogenins. Most of the 308 spectral curves collected here are not available in the published literature but were determined specifically for inclusion in this volume so that investigators in this field could use them for identification purposes. A short introductory chapter on experimental technique and on the use of the curves for identification purposes is also included. The volume contains an adequate index.

Trattamento del malato chirurgico: Fisiopatologia e clinica dell'operato. Dal Prof. Luigi Imperati, direttore incaricato dell'Istituto di patologia chirurgica dell'Università di Sassari. Prefazione del Prof. Luigi Torraca, direttore della Clinica chirurgica dell'Università di Napoli. Cloth. 7000 lire. Pp. 684, with 116 illustrations. Casa editrice V. Idelson di E. Gnocchi & F., Via E. de Marinis 19, Naples, 612, 1953.

After the introduction to this new and interesting book, in which the author speaks of different phases of the evolution of surgical therapy, he expresses the opinion that surgical intervention is not only a problem of operative technique but also of physiopathology and medical therapy. He gives a clear and complete analysis of what the modern surgeon should know about the postoperative patient. He discusses the patient's physical, humoral, hemodynamic, and metabolic conditions, particularly the changes before and after surgery, and the operative risk and its causes.

Believing with Osler that the surgeon should be a well-informed physician, he comments on medical therapeutic aids, sedatives, stimulants, hemostatics, anticoagulants, chemotherapy and antibiotics, infusion and transfusion therapy, and physiotherapy. In the second part of the book, he treats extensively anesthesia and its many problems, particularly shock, for which he uses a formula involving "the circulatory quotient." This formula indicates the peripheral circulatory condition of the surgical patient before operation. Regarding organic and functional cardiac, renal, metabolic, endocrinic, and dyscrasic diseases, he discusses the operative risk and the prognosis. Post-operative complications and the surgery of the different organs are described. There is a chapter by Professor Guidetti on surgery of the central nervous system. This volume is recommended to all surgeons who read Italian.

QUERIES AND MINOR NOTES

CRACKING JOINTS

TO THE EDITOR:—For years I have been searching for information on the biomechanics and the clinical and pathological implications of the phenomenon of sound produced by the "cracking" of a knuckle or when the arms are over-extended. What is the explanation for the temporary feeling of relief in the joints? What is happening during the interval when the feeling of relief is waning and during which one cannot get the joint to "crack"? Why does the joint "crack" more frequently in cold and wet weather? I have seen patients who, by positioning limbs and trunk in different poses and then contracting muscles, "crack" almost every joint in the body.

M.D., New York.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Several theories have been advanced as to the mechanism of joint "cracking," but apparently none has been substantiated by experimental observation. These include the slipping of a tendon or ligament over a bony prominence when the joint is moved or stretched, the pulling apart of opposing joint surfaces, and the forcible sliding of a tendon in or out of its sheath. The temporary feeling of relief may be due to relaxation of muscular tension, with the subject unable to produce the "cracking" during the period of relaxation. It is also possible that the tendon, if involved, becomes edematous from the "cracking" and thus relaxed. With the loss of edema, a state of tension may resume that again permits the "cracking" process. If cold or wet weather contributes to muscular tension, then "cracking" would be facilitated. It seems unlikely that the sound is produced by actual breaking of fibrous tissue.

ANSWER.—The phenomenon of "cracking" joints is probably not perfectly understood but several facts are known about it. Most joints that "crack" are not the site of any serious pathological process. Rather, there is some slight aberration in the contour of the joint, such as a roughening or irregularity, over which some structure of the joint passes; after that structure has passed the irregular spot it is restored to normal position, with the accompanying audible or palpable "cracking." Why joints "crack" more in cold weather or wet weather than at other times is not known, and it may not be a fact that they always do this. In cases in which relief is obtained from stretching, probably some mild capsular contracture tends to make the joint slightly uncomfortable and the discomfort is relieved by stretching the capsule. Of course, in severely deranged joints there is often a good deal of audible and palpable crepitus. This obviously is attributable to the irregularities of the joint, and relief is not obtained by movement of the joint. Rather, the opposite is often true.

DIAGNOSIS OF DRUG ADDICTION

TO THE EDITOR:—Are there any simple pathognomonic physical findings by which the family physician's suspicion of narcotic addiction may be supported? Tell-tale needle scars are seldom seen now except in the chronic habitué.

M.D., California.

ANSWER.—There are no pathognomonic physical findings by which the diagnosis of addiction to narcotic drugs of the morphine type can be made as long as the addict is taking the drugs. Such findings as needle marks (especially if fresh), miosis, somnolence, and behavior change, while suggestive, are not diagnostic. Tests for the presence of narcotics in urine

are very helpful but are very difficult, dragged out, and also not usually available to the average physician. The diagnosis may be made in one of two ways. The patient can be isolated in a drug-free environment and observed for the appearance of signs of abstinence. These should be evident and unmistakable within 24 hours, unless the patient has succeeded in smuggling narcotics into the isolated environment. The procedure requires familiarity with signs of abstinence. These have been described by Vogel, Isbell, and Chapman (*J. A. M. A.* 138:1019-1026 [Dec. 4] 1948). Diagnosis may also be made by precipitating abstinence with a small dose of N-allylnormorphine (Nalorphine). The method of using this drug has been described by Isbell (*Merck Report* 62:23-26 [April] 1953).

CONVULSIVE THERAPY

TO THE EDITOR:—I have made observations on the electroshock treatment of 24 emotionally disturbed patients in three midwest hospitals. I observed 48 hour results following 187 electroshock treatments. The condition of 81% became worse, of 10% improved, and of 11% unchanged. Some investigators have proved that petechial hemorrhages and small focal necroses may result. Some British investigators have observed similar brain lesions. Please express an opinion.

M.D., Indiana.

ANSWER.—Evaluation of the convulsive treatment should not be based on observations 48 hours after the treatment. The reason for this is, as Meduna reported 19 years ago, that 24 hours after the convulsive treatment the patient's level of consciousness approaches qualitatively that of a postconvulsive confusion; 48 hours after the treatment the patient's conscious state of mind is a blend of the original psychotic state and of residuals of an epileptic confusion. Changes, if any, should be evaluated only on the third day after the convulsive treatment. Changes cannot be appraised as beneficial following a single convulsive treatment. Sometimes 4 or 5 or even 15 or 20 treatments are necessary to produce beneficial changes in the patient's pathological state.

Convulsive therapy was introduced as a treatment for schizophrenia, but the spectacular results in affective disorders overshadowed its effectiveness in schizophrenia. The emotional disorder very rarely, and only in cases selected with extreme caution, is an indication for convulsive treatment. The main indications for convulsive treatments are (1) manic depressive disease (80 to 100% remissions in the depressive phase and 70 to 90% remissions in the manic phase) and (2) the involutional psychoses such as involutional melancholia, depressions in old age, and involutional psychosis of the paranoid type (86% remissions in involutional melancholia and 43% in the paranoid group). In schizophrenia of less than six months' duration, 68% recover, and in schizophrenia of six months' to two years' duration 41% recover after the proper administration of convulsive therapy.

The complications and dangers of the treatment are well known to the psychiatrist. Cerletti and de Bini in Italy, studying dogs receiving electric therapy comparable to that given to human beings, found no destructive alterations of cells, no hemorrhages, and no necroses. In this country Barrera, Lewis, Pacella, and Kalinowsky reached the same conclusion on investigating brains of monkeys treated with electric shock. Ebaugh has described a patient in whom death occurred during the first convulsion. The changes he found were reversible and could not have interfered with brain function.

Convulsive treatment is an extremely useful tool in the hands of the psychiatrist. Its proper indications and contraindications can be looked up in any textbook dealing with the subject. Proper basic information can be obtained from "Shock Treatments, Psychosurgery, and Other Somatic Treatments in Psychiatry" by Kalinowsky and Hoch (ed. 2, New York, Grune & Stratton, Inc., 1952).

SYPHILIS

TO THE EDITOR:—A diagnosis of syphilis was made on the basis of a 4+ Wassermann test about four years ago. While the patient's history is confusing, it is possible that an insignificant lesion on the penis 15 years ago could have been the atrium of infection. Following this, however, there were several negative Wassermann tests and one moderately positive one. The treatment has been a combination of long courses of both the arsenic and bismuth preparations followed by six courses of from 10 to 15 million units of penicillin intramuscularly until the blood serum Wassermann reaction was normal. One spinal fluid test during the height of the positive blood Wassermann reaction was absolutely negative. No other spinal punctures have been made since. One year following the negative Wassermann reaction another blood serum test showed a 4+ Wassermann reaction. There are no other findings. Hence my questions: 1. What is the prognosis if treatment with penicillin is continued? 2. At what intervals should injections of 10 to 15 million units of penicillin be given? 3. Do you suggest combining this with any other remedy? 4. Have any of the newer antibiotics proved definitely spirocheticidal?

M.D., Arizona.

ANSWER.—The data furnished in this query are incomplete, as the only evidence that the patient has syphilis is the positive serologic test for syphilis. As this has varied from negative to positive, it may be that the test is biologically false positive. Therefore, it would be well to have a *Treponema pallidum* immobilization test done to establish the fact that the patient does have syphilis.

In regard to the four questions: If the patient does have syphilis, if the spinal fluid is negative, if he has no evidence of cardiovascular syphilis, and the impression is that he has had the disease for 15 years, the prognosis is good, whether or not he has any treatment. In other words, the continued administration of penicillin at the rate of 10 million units in a 12 day period is not of value in patients with latent syphilis in reversing the serologic tests to negative and therefore there is no justification for its further use. It has likewise been shown that penicillin need not be given in combination with any other remedy, as it is effective alone in early, visceral, and neural syphilis. However, it does not help the reversal of Wassermann-fast serologic tests to negative and accordingly should not be given in repeated courses. The other antibiotics, such as chlortetracycline (Aureomycin) and oxytetracycline (Terramycin), have been proved to have value in the treatment of syphilis but are not indicated in this patient because of the fact that the treatment has been more than adequate to date.

CARDIAC ARREST

TO THE EDITOR:—1. With reference to anoxia as a factor in cardiac arrest, is there a critical point in oxygen saturation or deficiency in the circulation that predisposes to or would precipitate cardiac arrest? 2. With reference to anemia as a factor, is there some point or percentage of gram level in hemoglobin that one can accept as an indication for preoperative transfusion of whole blood prophylactically in major surgery when no more than ordinary blood loss is anticipated? 3. Does the giving of curare predispose to cardiorespiratory failure?

Santo S. Torcivia, M.D., Milwaukee.

ANSWER.—1. Anoxia is perhaps the commonest factor in producing cardiac arrest. The critical level scarcely exists as such, but anoxia added to other possible factors can bring about cardiac arrest. 2. The answer to this question is much the same as in 1. The hemoglobin content should be kept as close to normal as possible. Anemia plus anesthetic agents can precipitate cardiac arrest when either group of factors alone would not produce arrest. 3. I use the Rand-Wolfe respirator for all operations on the heart. My opinion is that curare does not predispose to cardiorespiratory failure. I think the surgeon is the responsible person for the operation and all other services connected with it. The patient selects the surgeon and places responsibility in him. He does not select the anesthetist, and he expects the surgeon to provide proper anesthesia.

EXTRACTION OF TEETH IN HEMOPHILIACS

TO THE EDITOR:—A 35-year-old hemophiliac has a septic mouth and his 15 remaining teeth should be removed. The last attempt at extraction resulted in hemorrhage that required transfusions of 7,000 cc. of blood. There is a dispute among the hematologist, the exodontist, and the man's dentist regarding whether to remove one tooth at a time or to remove all at once. What is the best method of handling this case?

M.D., Pennsylvania.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

ANSWER.—The method of choice for the extraction of teeth in hemophiliacs is exfoliation by means of thin rubber elastics as described recently by Massler and Aguirre (Massler, M., and Aguirre, B.: Exfoliation of Teeth by Means of Elastic Bands, *J. Dent. Child.* 19(2):56-59 [Jan.] 1952) rather than by extraction. There is an advantage in the extraction of all the teeth at one time, since the number of hemorrhagic episodes is thus reduced. The patient should be carefully prepared by (1) loosening of teeth with rubber ligatures to reduce operative trauma; (2) transfusion to reduce bleeding time to less than 15 minutes; and (3) hospitalization prior to extraction.

ANSWER.—Extractions should not be limited to one tooth at a time, especially in a case in which removal of 15 teeth is indicated. The necessity for control of hemorrhage on 15 different occasions would be most impractical and an unnecessary hardship to the patient from the standpoint of both time and cost; it is very doubtful, also, that it would reduce the risk. Generally speaking, it is advisable to extract the teeth situated in continuous series. The reason for this is that the region that presents most difficulty in local control of hemorrhage is invariably adjacent to the tooth that remains. Insofar as local control of hemorrhage is concerned, it may be advisable in many instances to confine extraction to one jaw only. This would require not more than two sittings.

KELOIDS FOLLOWING OPERATIVE SCARS

TO THE EDITOR:—In a previous issue THE JOURNAL mentioned the use of hyaluronidase for treatment of keloids following operative scars. A therapy with this preparation by Cornbleet was mentioned. What is the specific technique used?

Leon Badler, M.D., Bronx, N. Y.

ANSWER.—Cornbleet's method is as follows: A solution of 150 units of hyaluronidase in 1 cc. of saline solution or larger quantities in the same proportion is used. The entire keloid is distended by injection of the solution at intervals over the entire surface. Tuberculin or lock-type syringes should be used to overcome early resistance of older keloids. The injections should be repeated once or twice a week. Early keloids are ready for surgery after two to four weeks, but older ones need as much as three months' preparation. Hyaluronidase treatment is resumed when the skin edges heal together, while the usual routine radiation is administered simultaneously. With early keloids no surgery is necessary, and radiation therapy with x-rays or radium may be begun after a week or two of preliminary hyaluronidase treatment. Enzyme injections should precede each individual radiation exposure. The normal skin should be irradiated for a distance of 1 in. (2.5 cm.) beyond the border of the keloid.

ANTIBIOTICS AND RABIES

TO THE EDITOR:—Do the antibiotics suppress Negri bodies, so that on postmortem examination of the brain of a rabid animal these bodies may be absent or immature?

Bernard Greenberg, M.D., Brooklyn.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

ANSWER.—To the present time, no known antibiotics suppress Negri bodies under usual conditions (Fagan, R.: *Proc. Soc. Exper. Biol. & Med.* 81:213-214, 1952). Other studies, however, indicate that Negri bodies may be suppressed by the early administration of known high-titered rabies antiserum or rabies vaccine, both in cases of experimental fixed virus infection and in street virus infection.

ANSWER.—So far as can be determined, there is no evidence that any of the presently available antibiotic agents exert any virostatic or viricidal action against the agent of rabies. For this reason, one would not expect the administration of an antibiotic to affect the formation of Negri bodies in the animal infected with the rabies virus; there should, therefore, be no difference in the Negri bodies in the brain of animals that have not been treated and those that have received any of the presently available antibiotic agents.

PAIN IN HEMIPLEGIC AREA

TO THE EDITOR:—In the reply to the question concerning pain in a hemiplegic area in *Queries and Minor Notes*, Dec. 12, 1953, it occurred to me that describing "almost continuous pain in the entire hemiplegic area" to spasticity is quite unusual. In addition, the further statement that this might be due to "vascular or visceral pain following the path of blood vessels" seems meaningless. In view of the fact that the entire hemiplegic area is involved, it would seem most likely that this patient presents an example of the "thalamic syndrome." As such, anterolateral cordotomy would certainly not be effective. In addition, the statement is further made "Since the pain is of visceral type, it should respond to procaine intravenously." I am at a loss to understand why such a differential point should be made, as the inference is that visceral pain and procaine relief are somehow related. If the patient mentioned has a thalamic disturbance, I fear that any therapy will prove difficult. The last point that interested me is the inference that the hemiplegic patient is more sensitive to opiates in terms of blood pressure response, because of a sensitivity at the peripheral receptors, the blood vessels.

John B. Pfeiffer, Jr., M.D.
Duke University School of Medicine
Durham, N. C.

The above letter was sent to the consultant who answered the original query and to an additional consultant whose comments follow.—ED.

TO THE EDITOR:—The following paragraphs clarify my previous remarks. The commentator must have reference to "central pain" rather than thalamic syndrome. Bonica writing on "central pain" classifies both the thalamic syndrome and pain owing to lesions of the spinal cord as "central pain." If the pain originates at the site of the severed spinothalamic tract fibers, then "central pain" is the proper term. Bonica has a section on central pain with lesions of the spinal cord that should be consulted.

C fibers that carry slow or burning pain presumably follow the pathways of blood vessels and frequently enter the spinal cord at levels well above the usual somatic dermatome. As an example, toenail bed pain, which is predominantly "C fiber pain," requires block of T_{11} and T_{12} dorsal roots for relief. The use of the term visceral was not intended in the sense of afferent fibers from viscera, but rather small diameter fibers that follow the pathways of blood vessels. If these fibers contribute to the pain of this hemiplegic patient, then procaine intravenously may give some relief and should be tried; it may be more effective than opiates without the addiction liability of the latter.

Patients receiving any of the potent analgesics intravenously show a rapid dilation of the conjunctival blood vessels and a tendency toward postural hypotension. This same phenomenon occurs after subcutaneous injection, but at a slower rate. I believe this is a persistent histamine-like effect, but others ascribe it to an acetylcholine-like effect. The concomitant cutaneous itching would favor the persistent histamine theory, which might also explain the increase in intestinal segmental movement and tone that occurs. The hypotension is sufficiently prominent in human trials so that normal subjects at bed rest almost never have nausea and vomiting while ambulatory subjects have postural hypotension and frequently have emesis.

TO THE EDITOR:—There are not enough details for one to attempt a complete resolution on the differences of opinion expressed by the person who answered the question and

the one who wrote in about it. I am dubious about the designation that the pain should be ascribed to thalamic sources. In the so-called thalamic syndrome, sensory loss, ataxia, and pain are usually seen together. The hyperpathia is never continuous, and it is generally evoked by a peripheral stimulus. Furthermore, many of the cerebrovascular lesions involve the thalamic region, but few present the picture given above. Finally, such patients are never seen in hospitals that utilize the services of physical therapists. There is much to indicate that the so-called pain is more "misery" or anxiety than real. Sensory pathways being as ill-defined as they are, it is rare that denervation is complete in all spheres, and protopathic sensations can and do reach the cerebrum from the joints of hemiplegics. This is often less than that which accompanies any disability which has immobilized a joint. Early and frequent movement of such joints will eliminate the complaint of pain. Late in the course of such cases it is essential that full ranges of motion be attained, but there will not be the assurance that all complaints will be abolished. I have personally relieved such pains by cordotomy in carefully selected patients, and I know of others who have had the same experience, especially when the complaints were confined to a single extremity. In a patient who is hopelessly involved in the emotional equivalents of severe disability, nothing short of frontal lobe procedures can be expected to be of help. It would be my guess that the patient in question has primarily an emotional problem and that the first approaches should be those of rehabilitation, with surgical considerations being reserved for the future. It is certainly possible to help this patient considerably.

The second part of the discussion centered around the inference that the pain was of a vascular nature. I believe that the primary difference is one of terminology. The "visceral" pain of Davis and Pollock is probably much the same as the "sympathetic" pain of many others. I thought that it was common knowledge that meperidine caused drastic drops in blood pressure, especially in hypertensive patients. I certainly see it often, in hemiplegia from causes other than cerebrovascular accidents as well. That there are vascular differences on the hemiplegic side is a well-documented fact (hemiedema, "trophic" changes, etc.). Whether these are equivalent to the demonstrations of White in regard to sympathetically denervated vessels would depend greatly upon the exact nature of the lesion in the brain. Those who have stimulated the various areas of the brain to induce sympathetic changes are aware of the intensity of the responses that are possible, especially from areas 13 and 14 on the orbital surfaces of the frontal lobes. There may be a "release" mechanism involved in given patients, just as Walker describes the protopathia of thalamic lesions. It would be of great help in attempting to resolve the differences to have a trial injection into the involved carotid artery of several cubic centimeters of procaine, but it would not give an answer to the academic points. Occasionally, procaine blockage of the cervical sympathetic nerves helps one reach some conclusions in regard to the nature of the symptoms. It would be my guess that the patient has a huge clot that is resolving slowly and that angiographic survey of the cerebral circulation would be a necessary prelude to much discussion. On a purely empiric basis, I would return to the original implication that the patient was allowed to become too incapacitated by his disease and has become a problem of salvage.

REMOVAL OF PERMANGANATE STAINS

TO THE EDITOR:—In reference to *Queries and Minor Notes*, on this subject in *THE JOURNAL*, Sept. 19, 1953, page 258, and Oct. 31, 1953, page 894, the use of sodium bisulfite appears to be inexpensive, safe, and very effective. It can be applied in powder form like any kitchen cleanser. When employed on the hands, it is recommended that it be removed by a weak acid such as vinegar.

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PAUL EHRLICH: HIS CONTRIBUTIONS TO MEDICINE

A TRIBUTE AT THE CENTENNIAL OF HIS BIRTHDAY

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Most great men in medicine are remembered because their names are connected with one fundamental discovery, with the description of one or several diseases, with important symptoms or signs, or with technical or operative procedures. Paul Ehrlich's contributions to medicine are so numerous that it is not possible to link his name with one particular achievement. In hematology, in immunology, and in chemotherapy (a means of treatment which he originated), Ehrlich established many basic facts, developed a number of fundamental methods, and coined a multitude of terms that have become the common property of the medical profession. They are used so frequently that the name of Paul Ehrlich now is seldom quoted in this connection. At the centennial of the birthday of this genius and pioneer, it appears to be appropriate to recollect those of his accomplishments that have withstood the test of time to the present day.

Paul Ehrlich was born March 14, 1854, in Strehlen, a small town in Silesia, Germany. A brilliant scholar at the gymnasium and an exceptional student in medicine, he had already started laboratory work of his own before graduation. At the age of 23, Ehrlich published his first scientific paper; he described a new type of cell that he had found, which he called *Mastzellen* or mast cells, a term used to this day. The discovery of the mast cells was the first practical result of Ehrlich's attempts to utilize the aniline dyes, recently created by the chemical industry, for staining purposes in histological studies. While he was a resident in internal medicine at the University Hospital in Berlin, called the Charité, he developed the basic methods used in modern hematology.

He devised the technique of preparing a thin layer of blood and applying the most suitable dyes to this smear when dry. All available dyes of various chemical character and many different mixtures of them were tested. For the first time Ehrlich studied the granulations in the protoplasm of the white blood cells. He found and characterized the eosinophils, the basophils, and the neutrophils (later called the polymorphonuclear white blood cells). He described, furthermore, the myelocytes, the large mononuclear leukocytes, and the transitional leuko-

cytes. He showed how to distinguish three types of red blood cells—the normoblasts, the megaloblasts, and the microblasts or poikiloblasts. With his command of Greek and Latin, Ehrlich easily found a characteristic name for each type of blood cell that he discovered. Most of these terms were universally accepted and are used unchanged to the present day. In 1887, Ehrlich showed how it was possible from a drop of blood to recognize lymphatic leukemia and to distinguish it from the bone marrow cell leukemia, later called myeloid leukemia. In the following year, Ehrlich described a new type of anemia, which he called aplastic anemia, and claimed as the cause of this anemia, “no activity of the bone marrow.”

Ehrlich's profound knowledge of the chemical procedures used in the synthesis of organic dyes led him to find a special test in urine, the so-called diazo reaction. Of much farther reaching importance was Ehrlich's wide experience with organic dye products for developing staining methods to recognize and to identify the recently discovered bacteria. He introduced methylene blue for this purpose and recommended this dye to his friend, A. Neisser, for use in Neisser's successful search for the organism that causes gonorrhea.

On March 24, 1882, Robert Koch had reported before the Physiological Society in Berlin that he had discovered the bacillus that caused tuberculosis, which he called the “tubercle bacillus.” Less than six weeks later, on May 1, 1882, Ehrlich demonstrated before the Society of Internal Medicine in Berlin his method of staining and identifying Koch's tubercle bacillus by means of its acid-fastness, which Ehrlich had discovered. Ehrlich's method for staining the tubercle bacillus, described in 1882, is practically the same used everywhere today. Robert Koch gave greatest credit to Paul Ehrlich: “It is due to Ehrlich's staining method for finding the presence of the tubercle bacilli that the search for tubercle bacilli in the sputum was universally adopted. Without Ehrlich's method but just a very few research workers may have been able to study the tubercle bacillus.” Thus wrote Robert Koch in 1883.

From the Department of Pediatrics, Northwestern University Medical School, and the Children's Memorial Hospital. Dr. Hermann Pinkus, Wayne University College of Medicine, Detroit, furnished reprints, abstracts, and a memoir concerning Paul Ehrlich.

While Ehrlich intensively searched for tubercle bacilli in the various clinical forms of tuberculosis, he fell seriously ill in 1888. As tubercle bacilli were found in his own sputum, he had to interrupt all his activities. Accompanied and guarded by his wife, Ehrlich went to Egypt for nearly two years for rest and recreation. In 1890, Ehrlich returned fully recovered to Berlin. During this period of relaxation Ehrlich's genius had conceived new ideas. His interest was now attracted by problems of immunity. His investigations were started with methods not applied before. Ehrlich did not use substances of bacterial origin but used instead well-characterized toxic protein products of higher plants, such as ricin and abrin. He showed how animals could be immunized by injection of increasing doses of these toxic substances. He devised methods to determine quantitatively the degree of immunity and the amount of antitoxins present in the blood or serum of the immunized animals. He showed that immunized nursing mice are able to transfer their specific immunity to their offspring but that no immunity can be transferred from immunized father animals. While fascinating from a biological point of view, these studies appeared to the medical profession to be without any practical interest. Few suspected that the results of Ehrlich's "theoretical" studies shortly would revolutionize their therapeutic activities and help them to save many of their patients.

In 1892, Emil von Behring had succeeded in immunizing horses against diphtheria with diphtheria toxin and in producing a completely new type of remedy, a horse serum containing diphtheria antitoxin. However, Behring recognized that the degree of antitoxic efficacy of his products could not be controlled. Before it would be possible to use this new product for the treatment of diphtheria in human beings, it was imperative to find some way to measure the curative potency of the various serums obtained from immunized horses. At this critical moment, Behring sought the advice and the cooperation of Paul Ehrlich.

On the basis of his experience, Ehrlich with his collaborators, Kolle and von Wassermann, developed procedures of obtaining potent antitoxic serums. Ehrlich devised exactly defined units, which he called I. U. (immunization units), for the determination of the content of antitoxins, and he established the fundamental methods of standardizing antitoxin in these immunization units, which were accepted in all civilized countries. Finally, the dose of antitoxin required for the treatment and for prophylaxis of diphtheria was determined in Ehrlich's immunization units. The introduction of diphtheria antitoxin, a scientifically standardized remedy against a dreadful disease, had an enormous impact on medical and especially on pediatric practice. The demand for this unique product rose enormously in Europe, America, and other continents.

In 1896, the Prussian government erected in Steglitz, then a suburb of Berlin, a new institution called "Royal Institute for Standardization and Investigation of Antitoxic Sera." The 42-year-old extraordinary professor of internal medicine at the University of Berlin, Paul Ehrlich, was made the director of this institute and was given the title *Geheimer Medizinalrat* (Privy Medical

Counsel). Here, Ehrlich completed his outstanding monograph on the "Standardization of Diphtheria Antitoxin." He also stipulated the two fundamental principles of immunology: 1. Toxins are strictly specific. 2. Toxins introduced into the animal organism cause the production of equally specific antitoxins, far in excess of the amount required to neutralize the amount of toxin introduced.

To illustrate the reaction between toxins and the body cells and between toxins and antitoxins, Ehrlich developed his much-discussed "side chain theory." According to this theory, each toxin molecule has two groups, the toxophore group that carries the toxic action and the haptophore group that fits into a receptor group of the cell. When the receptor groups of a cell are filled with haptophore groups, the cell is stimulated to produce new receptor groups; according to the law of hyper-regeneration, these new receptor groups are produced in excessive numbers and therefore are released from the cell into the circulation, where they act as antibodies. During these studies Ehrlich made the observation that, after certain procedures, toxins in solutions could lose their toxophore groups but retain their haptophore groups. Ehrlich called these derivatives of the original toxins "toxoids." He emphasized that these toxoids had lost their toxicity but were still able to stimulate the production of antitoxins. He showed how it is possible to transform solutions of toxins into solutions of the corresponding toxoids, and he recommended these toxoids for the purpose of immunizations. It was a quarter of a century and later before the fundamental value of Ehrlich's "toxoids" finally was recognized and the use of toxoids for immunization against diphtheria and tetanus became a universally accepted procedure.

While an increasing number of specific antitoxins were used with great enthusiasm all over the world, Paul Ehrlich recognized that immunotherapy had its definite limitations. It was not possible at that time to prepare antitoxic products against the protozoa, such as the *Plasmodium malariae*, the trypanosomes, spirochetes, and spirillas, nor against the newly discovered filtrable viruses. Ehrlich felt that, in the search to combat these parasites, he had to return to his old trail, to substances that through their chemical structure had a specific affinity to the parasites and were, in Ehrlich's nomenclature, "parasitotrop." His new slogan was "We must learn to aim chemically!"

Toward the end of the 19th century, larger facilities were planned for Ehrlich's work, to be erected in Frankfurt am Main. According to Ehrlich's suggestions, this new institution was built as the "Royal Institute for Experimental Therapy." The examination and standardization of the antitoxins was confined to one department; the greater part of the laboratories was devoted to the search for chemical products suitable for curing infectious diseases. To indicate that this was an entirely new way, different from the methods pharmacology had used up to this time, Ehrlich coined the term "chemotherapy." The best definition of the principles of chemotherapy is given in Ehrlich's own words: "To be successful in chemotherapy we must search for substances which are fitted to annihilate the invading parasites with the least possible damage to the host organism."

For his chemotherapeutic studies Ehrlich then resorted to experimental infections with trypanosomes and spirochetes. These parasites were transmitted to large series of mice, rats, rabbits, and other laboratory animals to test the curative action of any number of chemotherapeutic agents. As such, Ehrlich chose at first his beloved aniline dyes but soon turned more and more to organic compounds of arsenic, which were systematically synthesized according to his designs. The series of animals and the number of preparations tested rose to gigantic figures. His staff of co-workers grew steadily, especially after 1906 when a second institution, the "Georg Speyer House," was built adjacent to the institute. The 606th arsenical compound, arsphenamine (Salvarsan), proved to be a remedy that gave therapeutic results far exceeding those of any drug ever used before in the treatment of syphilis and several tropical diseases. The discovery of arsphenamine in 1910 was regarded as an unprecedented triumph of chemotherapeutic research. Ehrlich was overloaded with honors and decorations.

At the 17th International Congress of Medicine held in London in 1913, Ehrlich gave a summarizing address on chemotherapy. With great satisfaction he told how in Surinam, Dutch Guiana, a hospital for the treatment of 300 patients suffering from frambesia (yaws) had to be closed because this disease, caused by *Spirochaeta pertenue*, a relative of *Spirochaeta pallida*, could now be successfully cured after one injection of arsphenamine. When arsphenamine had been replaced by the easier-to-handle neoarsphenamine (Neosalvarsan), the treatment of syphilis with this drug was generally introduced in several European countries and systematically controlled. Here the incidence of syphilis declined progressively, and, by the middle of the 1930's, congenital syphilis in infants had become almost unknown until the population shifts during World War II brought occasional reappearances.

As important as these therapeutic results appeared at their time, the inspiration that Paul Ehrlich gave to the further development of research and therapy was much farther reaching and longer lasting. His fascinating personality and the unique facilities in both institutions under his direction attracted numerous scientists from many countries. From the United States may be mentioned these men: Professor Herter from New York; Reid Hunt from Harvard, who was Ehrlich's assistant for two years; and William H. Welch, the great reformer of medical education in this country, from Johns Hopkins. A wider part of the medical profession was stimulated by the numerous lectures that Ehrlich was invited to give: the Croonian and the Harben Lectures in England, and the Herter Lectures in New York and Baltimore, followed by lectures in Washington and Chicago. He addressed congresses in Paris, Brussels, and London. In December, 1908, in Stockholm, after being awarded the Nobel Prize, Ehrlich gave an acceptance speech entitled "Partial Functions of the Cell."

Many of the ideas that Ehrlich developed and followed experimentally from 1904 to 1914 concerned the same problems that today, after more than 40 years, form the center of research and interest in chemotherapy. Early Ehrlich recognized and showed experimentally the

dangers of too sudden and too forceful destruction of the parasites because of the toxic products that may be liberated. He emphasized that it is fully sufficient for his "therapia sterilisans magna" to make "each individual parasite unable to reproduce." An ideal chemotherapeutic agent, according to Ehrlich, prevents the multiplication of the parasites. Today we have learned that the action of our best sulfonamides and antibiotics is bacteriostatic and not bactericidal.

In several instances Ehrlich recommended his "combination therapy," the simultaneous application of several chemotherapeutic agents with an entirely different chemical structure and therefore with different "chemoceptors" to attack the parasites from various sides. Ehrlich showed experimentally that in such a combination the toxic side-effects to the host are simultaneously reduced. Again at the International Congress in London in 1913, Ehrlich reported the great success that was achieved by using a combination of arsphenamine with acriflavine (Trypaflavine) and *o*-chlororosaniline (Tryparosan) for the treatment of trypanosomiasis in the Congo region of Africa. Today the same principle is applied in the chemotherapeutic treatment of tuberculosis. Here small doses of the somewhat toxic streptomycin are combined with *p*-aminobenzoic acid (PABA) and isoniazid products.

Ehrlich's greatest concern was the problem of drug-fastness. He recognized as the most frequent cause of drug-fastness treatment with doses that are nearly but not fully sterilizing. He emphasized again and again the dangers of under-treatment. He reported on a strain of arsenic-fast trypanosomes, which, in his laboratory during three years, was transmitted from mice to mice in 400 passages, and the last strain was still arsenic-fast. Ehrlich found that strains from cases in which relapses occurred were not infrequently fast to the drug that had been used for treatment previously. Drug-fastness is mostly limited to one type of drug, but, by prolonged and alternated under-treatment with three different trypanocidal agents, Ehrlich was able to produce a strain of trypanosomes fast to all three chemotherapeutic drugs. It appears that Ehrlich, 40 years ago, because of his extensive studies, was more aware of the dangers of drug-fastness than we realize today.

At Ehrlich's 60th birthday, March 14, 1914, 37 scientists published, as *Festschrift*, a monumental volume of 668 pages entitled "Paul Ehrlich, Eine Darstellung seines wissenschaftlichen Wirkens" (a description of his scientific achievements). Less than five months later World War I broke out. All research was completely disrupted. The man whose endeavor through all his life had been to alleviate human suffering felt his ideals to be wrecked and ruined. Fate spared him still greater disappointments. Paul Ehrlich died on Aug. 20, 1915. His mortal remains were interred in the Jewish Cemetery of Frankfurt, but the results of his genius have survived. During the first 20 years after his death, chemotherapeutic research produced new and improved remedies for malaria, sleeping sickness, and other tropical diseases, in addition to those of minor importance. The world-moving success came when Gerhard Domagk, following orthodoxically the trail shown by the great

pioneer, combined Ehrlich's favored azo dyes with the amide of sulfanilic acid, which had been the model for Ehrlich's arsanilic acid. Domagk's product Prontosil (2,4-diaminoazobenzene-4'-sulfonamide) proved to be the first chemotherapeutic agent of high potency against many of the bacteria that cause the most frequent infectious diseases in children. A disagreeable side-effect of Prontosil, the discoloration of the skin, was removed after Fournau and his group at the Institute Pasteur in Paris had shown that the azo dye component was not absolutely necessary for the therapeutic effect. Prontosil album (sulfanilamide) was introduced and became the mother substance of the numerous sulfonamide drugs synthesized in the following years, the amount now numbering nearly 5,000.

What role Paul Ehrlich's ideas played in the development of penicillin, the first antibiotic, was recently revealed by the very best informed person. In 1902, a young British physiologist, Dr. Henry Hallet Dale, went to Frankfurt and worked with Paul Ehrlich for two years. Ehrlich took a great liking to this gifted scholar

who later became one of Britain's most prominent scientists, was awarded the Nobel prize, and became Sir Henry Dale. As director of the British National Institute for Medical Research, he was informed of each and every step that led to the development of penicillin. On the basis of his experience, Sir Henry Dale in 1949 wrote as follows: "In 1935 Domagk's discovery of the action of 'Prontosil' opened the way to the series of the Sulphanilamide derivatives; and the revolutionary improvements which these effected in the treatment of a number of common infections, played its part in the decision of Florey and his team to examine anew the chemotherapeutic possibilities of the half-forgotten Penicillin, which Fleming had found ten years before. And the new enterprise by the marvelous success of Penicillin has now led to the discovery of Streptomycin, and others are already in sight. But the central idea of experimental chemotherapy, and the initial impulse to its triumphant march forward, came from Paul Ehrlich."

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TREATMENT OF URINARY TRACT INFECTION

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Urinary tract infections are second in frequency only to infectious processes of the upper respiratory tract.¹ Because of their frequency they are often dismissed as minor problems and may be treated in a rather haphazard manner, but this attitude may lead to serious difficulty and aid in establishing chronic infections with permanent and irreparable renal damage. Contributing to this attitude has been the advent of the chemotherapeutic and antibiotic drugs, which, after a preliminary course of therapy, may give relief of symptoms with striking and immediate results. In any given case, general care and good urologic management will be of greater benefit than any chemotherapeutic treatment. Womack and his co-workers have stated that age and systemic factors not only predispose patients to urinary infection but also militate against optimum beneficial results.² To take the greatest advantage of the recent advances in the use of chemotherapeutic agents in urology, one should consider these important factors³: (1) the suitability of the patients for treatment, (2) the bacteria involved in the infectious process, and (3) the agent or agents best suited for both the patient and the bacteria present.

SELECTION OF PATIENTS FOR UROLOGIC STUDY

When the patient is seen routinely by his physician in the office, the examination may reveal signs or symptoms of urinary tract infection by means of either the history or

the physical findings. Certainly all of these patients do not require complete urologic study; neither should they all be placed immediately on a chemotherapeutic regimen without further study. Those patients in whom physical findings suggest no pathological condition of the urinary tract, in whom no abnormalities are seen on a flat film of the kidney, ureter, and bladder, and in whom a simple, primary, acute infection exists caused by only one organism are the patients who are entitled to immediate treatment with one of the chemotherapeutic agents, without further urologic study. Those patients, however, who have had recurrent or chronic infections, in whom smear or culture tests reveal mixed organisms, in whom there are abnormalities of the lower urinary tract, prostate, genitals, renal mass, or in whom calcified areas that might be in the upper urogenital tract appear on the flat film are the ones who should have a complete urologic examination prior to institution of therapy. It is well known that, in the presence of abnormality of either the upper or lower urinary tract, chemotherapy is ineffective and may lead only to making the organisms resistant to the agent that, at a later date, might prove most effective. Any such urinary tract abnormality must first be corrected before more than a temporary effect can result from medication. In those cases in which it is felt that further urologic examination is necessary, the diagnostic procedure should be followed in an orderly manner, step by step, either to a satisfactory conclusion in diagnosis or to a complete urologic study with all its components. In those cases of simple acute infection in which antibiotic therapy has been instituted, if there is no immediate response, further urologic study is indicated.

Read before the Section on Urology at the 102nd Annual Meeting of the American Medical Association, New York, June 4, 1953.

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2. Womack, C. R., and others: Terramycin Therapy of Urinary Tract Infections, *A. M. A. Arch. Int. Med.* 89: 240-257 (Feb.) 1952.

3. Hinman, F., Jr.: Use of Antibiotics in Urology, *Ann. West. Med. & Surg.* 4: 829-833 (Dec.) 1950.

CAUSATIVE ORGANISM

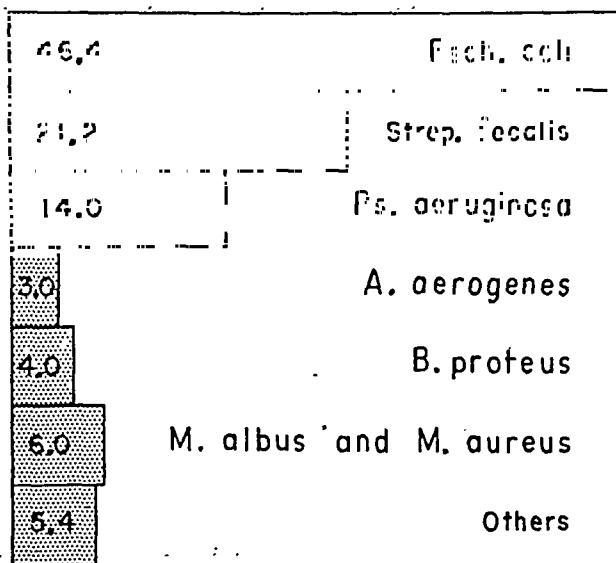
After ruling out or correcting fundamental abnormalities of the urinary tract, one must consider the type and degree of infection. It is important to obtain a sterile voided specimen from a man and a catheterized specimen from a woman during an acute attack. The centrifuged specimen should be examined for bacterial and cellular content. The question of whether to prepare a smear or a culture is sometimes difficult to decide. The smear has certain advantages in that it gives an immediate result and it establishes to some degree the number of organisms involved. The culture, on the other hand, although time consuming and somewhat more expensive, is advantageous in that it insures absolute identification of the organism, and the plated culture permits the use of sensitivity studies for the organism found. The culture of the organism is necessary for the purposes of correlation and for the treatment of complicated cases. Relatively few kinds of organisms are observed in cases of urinary tract infection. Simple infections of the acute variety are usually due to *Escherichia coli* or *Aerobacter aerogenes* and a *Staphylococcus* (*Micrococcus*); after instrumentation or surgery, *Proteus* and *Pseudomonas* organisms may be found, in addition, among the rods, and *Streptococcus fecalis* or enterococcus organisms among the cocci.⁴ It seems obvious, therefore, that, for the routine clinical application, the gram stain is of considerable value in the diagnosis of the acute simple urinary tract infection. In the complicated or recurrent or chronic case, culture and sensitivity studies should be done. There are three main reasons for using the sensitivity studies⁵: (1) chronic or recurrent infection, (2) infection resistant to previous antibiotic therapy, or (3) severe and fulminating infection.

THE ANTIBACTERIAL AGENT

For the intelligent use of the antibacterial agents in the treatment of urinary tract infection, one should consider certain principles in their action upon the living organism. The first factor to be remembered is that the action of the antibacterial agent is on the organism and not on the host. It affects the organism by interfering with certain metabolic activities of the growing cell. Most antibiotic agents are bacteriostatic in low concentrations and bactericidal in high concentrations. They differ from antiseptics in that they interfere with growing cellular metabolism rather than destroy the cell wall of both the bacteria and the host. The chemotherapeutic ratio is determined by the number of metabolic processes the agent inhibits. The second factor to be considered in the use of antibacterial agents is that the resistance of the organism to antibiotic agents may limit their effectiveness. Organisms may have natural immunity to the drug or may have acquired immunity by previous exposure. It is for this reason that it is important to have new drugs at hand, since with time and use a once-effective agent may become almost useless. This is now the case with penicillin in some instances, and the development of erythromycin has been extremely timely.

A third factor that must be considered in the use of these drugs is that toxicity may limit the dosage used. The principal limiting factor in the use of chemotherapeutic agents is toxicity, caused either by the dose relationship

or by the sensitivity of the host. Many of the toxic reactions for the sulfonamide drugs were due to dose relationship, while all those from penicillin result from sensitivity of the host, with no relationship to the dosage administered. O'Connor⁵ repeats an old saying, "One man's food is another man's poison," which is particularly true in this regard. Raper reports that probably 300 antibiotics have been isolated. Most are too toxic for general use, and only six or eight have reached clinical maturity. A fourth factor in considering the agent to be used is the amount of absorption by blood and tissues and excretion. Because of the relationship of the concentration to the effectiveness of the agent, this consideration is important. Consideration also should be given as to whether the process is an interstitial type of infection or a topical or mucous membrane infection. On this basis one might seek a high tissue absorption level or a high excretion level, depending on the nature of the infectious process.



Percentage distribution of 332 micro-organisms isolated from urinary tract infections in 325 patients (adapted from Rhoads et al.).

In treating interstitial infections, intensive and protracted treatment of the patient is often necessary and a thorough follow-up with urine cultures should be made despite cessation of symptoms. As an example, a child with chills, fever, and pyuria is seen by the pediatrician; treatment results in marked clinical improvement. The patient may next be seen with "honeymoon pyelitis" by the gynecologist, and brief antibiotic treatment results in an apparent cure. At 20 she is seen in the third trimester of pregnancy with signs of urinary tract disease with or without toxemia. At 30, when she again notices signs of urinary tract infection, she is seen by a urologist who finds essentially normal pyelograms but intrinsic renal infection. He starts a course of treatment with such marked improvement that she fails to return for follow-up treatment. This patient at 35 begins to feel weak and tired and

4. Rantz, L. A.: Infections of Urinary Tract, in *Advances in Internal Medicine*, edited by Steele, J. M., New York, Interscience Publishers, Inc., 1942, vol. 1, pp. 137-167.

5. O'Connor, V. J.: Urinary Antiseptics: Past and Present: Fact and Fancy, *Proc. Inst. Med. Chicago* 19: 187-199 (Dec. 15) 1952.

again has a urinary tract flare-up. She is then found to have irreversible renal damage and uremia with chronic pyelonephritis. The prognosis is poor. This woman will require continued palliative medical care. This type of story, treatment, and result can in many cases be avoided by prolonged, intensive, and varied treatment and follow-up studies.^{5a}

The last and fifth factor to be considered in the choice of an antibiotic agent is the effective drug combination. It may have a synergistic action, as in the case of streptomycin and one of the sulfonamide drugs, or an inhibiting effect such as reported with streptomycin and chloramphenicol⁶ (Chloromycetin) in certain types of infection in which the combination is less effective than either drug alone.

In considering the inhibiting effect of one drug upon another, one also should consider inhibition of organisms by other organisms. This established bacterial relationship may be abolished by antibiotics. With the elimination of one group of organisms, an organism that was not pathogenic previously with normal flora may become pathogenic and cause infection.⁷ An example of this is seen with the use of any of the broad spectrum antibiotics in sterilization of the intestine prior to surgery. The result may be an overwhelming staphylococcal enteritis, several cases of which have been fatal. The following combinations of drugs can be used in infectious processes due to each one of the organisms listed⁸: (1) *Esch. coli*, chlorotetracycline (Aureomycin), oxytetracycline (Terramycin), or chloramphenicol plus sulfisoxazole (Gantrisin); (2) *Str. fecalis*, chlortetracycline, oxytetracycline, or chloramphenicol plus sulfisoxazole or penicillin; (3) *Pseudomonas aeruginosa*, oxytetracycline or streptomycin plus sulfisoxazole; (4) *Proteus* organisms, chloramphenicol plus sulfisoxazole; (5) *A. aerogenes*, oxytetracycline, chloramphenicol, or streptomycin plus sulfisoxazole; (6) micrococci, chlortetracycline plus penicillin; (7) *Str. hemolyticus*, penicillin plus sulfisoxazole; and (8) *Klebsiella pneumoniae*, chloramphenicol or streptomycin. In review of these factors, many variables are seen that might influence the effectiveness of an agent.

TOPICAL USE OF ANTIBIOTICS

While it seems rational to depend upon tissue and urinary concentrations of antibiotics in eradication of infectious disease, there does seem to be a place in the urologic armamentarium for the topical use of these agents. Certain chronic infections of the urethra or bladder causing pathological conditions that cannot be corrected, may show marked improvement with therapy with these drugs. In wound infections in which the organism is resistant to nontoxic agents, a more toxic agent may prove beneficial as a topical medication. I am thinking here of the use of 1% to 5% solutions of the broad spectrum antibiotics in nonspecific anterior urethritis and the use of polymyxin in 1% solution in kidney and bladder infections by *Ps. aeruginosa* or the use of bacitracin in wound infections with resistant organisms.

CONCLUSIONS

There has been a tendency to disregard well-established, somewhat standardized aspects of the treatment of urinary tract infections because of rather miraculous

progress in the chemotherapeutic treatment of these diseases. Proper diagnosis, sound surgical principles, and elimination of other foci of infection plus sound supportive medical measures are still of primary importance in the treatment of these patients. Only on this basis can we expect maximum and permanent eradication of infection with careful and judicious use of any and all of the available and indicated chemotherapeutic drugs. To complete bacteriological knowledge, some trial-and-error use of the drugs may still be required before cure is attained, but new drugs are important and should be accepted for use if they are less favorable to resistance, less toxic to the patient, and more potent either in themselves or in combination with other agents than existing antibiotics or other agents.⁹ Finally, the most important factors in the treatment of urinary infection are proper consideration of etiology and diagnosis, sound urologic treatment of any pathological condition discovered, good general medical management, eradication of other foci of infection,¹⁰ and bacteriological choice of the proper drug. It is then necessary to avoid toxicity, treat fully, and follow the patient for recurrence before eradication is presumed.

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Polymyxin B.—[The Drug] was used to treat ambulatory, asymptomatic and symptomatic individuals found to have *Pseudomonas aeruginosa* in the gastrointestinal tract. In the control group of asymptomatic carriers, about half of the cases were spontaneously free of the organism in the follow-up studies 25 and 30 days later. One hundred fifty milligrams of the drug were given orally every eight hours for seven days to the experimental group. After five days, all the stools were negative for pseudomonas. Stool cultures were repeated in 23 cases, 25 and 30 days after the drug had been started. At this time, all but one were negative for pseudomonas. About half of the subjects receiving the drug had mild abdominal cramps or mild diarrhea or both between the first and third days of drug administration, and these lasted from a few hours to two days. They disappeared in each instance in spite of continuation of therapy and without administration of other drugs. Polymyxin B should be considered promptly as one of the control measures in any outbreak of diarrhea in a newborn nursery where pseudomonas is found as the most likely pathogen. Its use may also be considered as a prophylactic measure when personnel are found to harbor this organism. Oral polymyxin B is very effective in eliminating *P. aeruginosa* when it is present in the gastrointestinal tract either in carriers or in active infections.—G. Y. Mills, M.D., and B. M. Kagan, M.D., Effect of Oral Polymyxin B on *Pseudomonas Aeruginosa* in the Gastrointestinal Tract, *Annals of Internal Medicine*, January, 1954.

CONTROL OF URINARY INCONTINENCE IN PATIENTS WITH MULTIPLE SCLEROSIS

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It has been estimated that there are several hundred thousand persons in the United States who have multiple sclerosis. Recent surveys have shown that there are more than 4,500 cases of multiple sclerosis in the New England states alone, and of these 2,000 exist in Massachusetts.¹ About one-third of the patients who have multiple sclerosis have distressing urinary symptoms. These symptoms consist of frequency, nocturia, urgency, incontinence, and enuresis. In the past, very little could be done to mitigate these symptoms. Therapeutic failure was, in large measure, due to attempts to restore bladder control by drugs that were used to influence the central nervous system lesion of multiple sclerosis.

During the past three years I have had the opportunity to observe 85 patients with multiple sclerosis who in addition had urinary symptoms. The results of this study form the basis of this report and suggested that it was possible to approach the problem from another direction. To be sure, nothing could be done to alter the central nervous system lesion. Would not, however, a better understanding of the pathological physiology of micturition in multiple sclerosis enable one to influence favorably the behavior of the bladder? This shift in emphasis from the central nervous system to the bladder itself proved profitable. Better understanding of the behavior of the bladder in multiple sclerosis made it possible to allay frequency and nocturia and to enhance significantly urinary control.

Space does not permit a detailed review of the normal physiology of micturition and the way in which it is altered in multiple sclerosis.² For voluntary initiation of the urinary stream, however, the coordinated function of the thoracic diaphragm, the abdominal musculature, and especially the levator ani is necessary. Control of the levator ani and the pubococcygeus, which is the anterior portion of the levator ani, is needed to stop the urinary stream and to inhibit the contracting detrusor.

The patient with multiple sclerosis who suffers from urinary incontinence cannot readily contract the levator ani. He is just as awkward in the control of the levator ani as he is in the coordination of his leg muscles, an awkwardness that results in his peculiar gait. The detrusor too can be quite uncoordinated in its contraction and is extraordinarily hyperirritable. Portions of the bladder may contract separately, or the whole organ may go into spasm in response to minor stimuli (fig. 1 through 4). The commonest stimulus to induce an unwanted detrusor contraction is a sudden increase in intra-abdominal pressure that results from efforts such as rising from the recumbent or sitting posture, lifting weights, climbing stairs, and stepping onto or off curbs. These sudden detrusor contractions are responsible for the precipitous urgency and the involuntary micturition in multiple sclerosis. Because he is unable to contract the levator ani quickly, as a normal person can, the patient with multiple sclerosis cannot inhibit the detrusor that then proceeds to empty

the bladder. A clear understanding of these factors that affect micturition in multiple sclerosis makes it possible to control urinary symptoms satisfactorily.

MANAGEMENT

The management of the bladder in multiple sclerosis is based on relatively simple principles. 1. The bladder must be shielded against unnecessary stimuli to reduce urgency. 2. Detrusor hyperirritability must be reduced to eliminate incontinence. 3. The bladder capacity must be increased to lessen frequency and nocturia.

Clinically, these principles can be translated into the following plan of management. The clinician must become familiar with the patient's pattern of living. This he can readily do by reviewing the patient's activity in a typical day. Since urgency and incontinence are apt to be brought on by efforts that tend to increase intra-abdominal pressure suddenly, the history should bring out which activity is most apt to be followed by sudden urgency or incontinence and ways in which such activities can be circumvented or eliminated. Information on the daily fluid intake is important. For the patient with multiple sclerosis, a large fluid intake is undesirable and needlessly increases urinary frequency. The behavior pattern of the bladder is next ascertained by a simple record, which the patient is asked to keep for a 24 hour period, in which the amount of urine in each micturition and the time of voiding are recorded. The record may show a urinary frequency of 8 to 20 times a day; nocturia of 7 to 8 times; and a voiding volume of 15 to 90 cc. The analysis of this record often shows bouts of frequency during certain hours of the day. This information is helpful in planning drug therapy.

The physical examination of the patient must include a careful rectal examination in which particular attention is paid to the tonicity of the rectal sphincter and to the ability of the patient to contract or relax the levator ani at will. The better the voluntary control of the levator ani, the easier it is, as a rule, to restore nearly normal micturition.

The neurogenic bladder of multiple sclerosis is subject to spontaneous infections. The upper urinary tract, on the contrary, is seldom affected by the disease. Acute and

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chronic cystitis constitutes an added powerful stimulus to the hyperirritable bladder. It is, therefore, very important to determine whether the urine is infected. All therapy will fail as long as cystitis persists. Since infections are apt to recur, they must be watched for and treated vigorously with appropriate antibiotics.

The hyperirritability of the bladder can be significantly lowered or completely eliminated for hours at a time by the judicious use of anticholinergic drugs. Of these atropine sulfate is the cheapest and often the best. How much atropine to use and when to use it must be determined for each patient. Moreover, since multiple sclerosis is subject to remissions and exacerbations, the dosage schedule has to be adjusted according to the course of the disease. Successful control of urgency and incontinence does not mean that the patient must receive continuous anticholinergic medication. To do so may cause urinary retention



Fig. 1.—Cystogram showing hyperirritability of detrusor in patient with multiple sclerosis; note spasm of bladder from mere contact with catheter.

or relax the detrusor to the point where micturition becomes difficult or inefficient. Conversely, rule of thumb administration of the drug at arbitrarily chosen regular intervals may fail to produce urinary continence at the time when the patient most needs it. Anticholinergic drugs do not "cure" the abnormal bladder in multiple sclerosis. They can be used very successfully, however, to produce the right effect at the right time; in other words, one uses them not like an iron pill three times a day after meals but like a cocktail that is useful for a desired effect at a particular moment.

It is here that the micturition record mentioned above and the pattern-of-living information can be a very useful guide in the spacing of the medication. A tablet containing 0.4 mg. (1/150 grain) of atropine sulfate taken by mouth may abolish vesical irritability for from two to four hours. If, in the morning, the patient has a good deal of frequency and urgency that interferes with his activity, the tablet can be given one-half to three-quarters of an

hour before arising. Some patients need it only for periods of the midafternoon or evening. It is easy to teach a patient to note the length of time it takes for the drug to take effect and the duration of this effect. He soon learns to take the drug in a way that will achieve urinary con-



Fig. 2.—Cystogram obtained during excretory urography; Arrows point to deep folds that are results of contractions of bladder muscle.

tinence for the desired period of time. It is seldom necessary to use more than three to five tablets a day. Some patients do not tolerate atropine well because of excessive dryness of the mouth or visual disturbances. (Preexisting blurred vision may become aggravated.) When this occurs, other anticholinergic drugs may be tried. Bellafoline (containing 0.25 mg. total levorotatory belladonna alka-

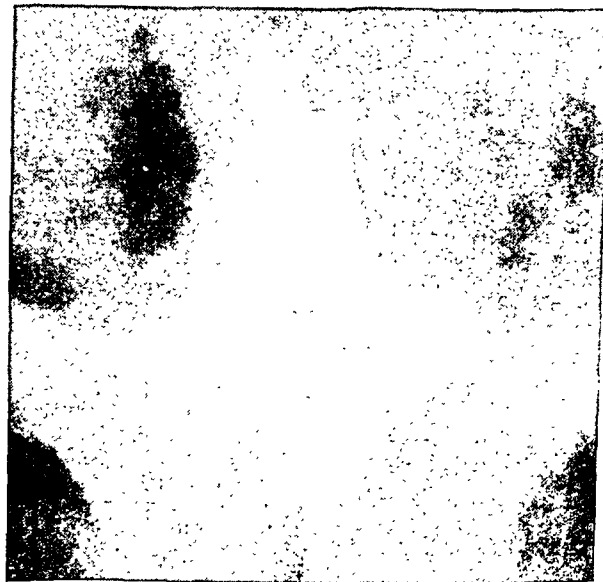


Fig. 3.—Retrograde cystogram in patient with multiple sclerosis showing irregularly contracting detrusor with upward projection of bladder dome and pseudodiverticula.

loids per tablet) is a satisfactory substitute for atropine and is less apt to cause visual disturbances or dryness of the mouth. In general, it is a more comfortable drug for the patient than atropine, although it is not quite as powerful, tablet for tablet, as the latter is in allaying detrusor

hyperirritability. Another drug that can be quite useful if neither atropine nor Bellafoline is tolerated is Octin (containing 0.12 gm. [2 grains] of methylisoactenylamine per tablet). Octin also is not likely to cause visual disturbances or dryness of the mouth. Occasionally it will

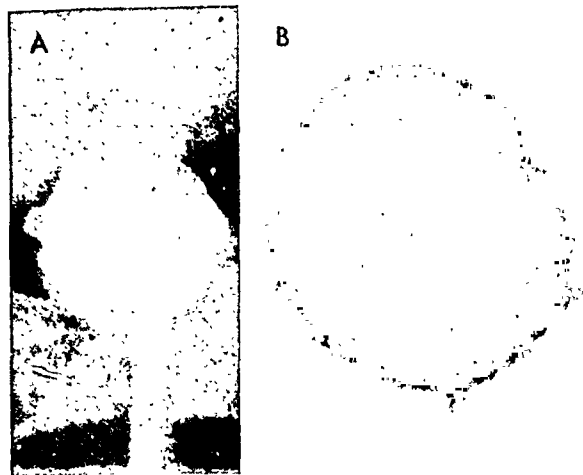


Fig. 4.—A, small spastically contracted bladder despite gentle filling at low pressure; B, same bladder with larger capacity and smooth bladder wall 30 minutes after administration of atropine.

brilliantly decrease bladder irritability. Some patients, however, experience peculiar "sensations" that they cannot describe accurately and that cause them to refuse to take the drug. Methantheline (Banthine)³ has also been reported to have a powerful effect on the bladder and it undoubtedly has. It has been difficult, however, to

achieve an even effect on bladder irritability with methantheline. It either relaxes the bladder too much or not enough. The newer derivative of methantheline, propantheline (Pro-Banthine) bromide, was not given to any of the patients.

Except in the final stages of the disease when an atonic overdistended bladder with overflow incontinence is commoner is it ever necessary to treat the urinary incontinence by means of an indwelling catheter. In some patients, the whole urinary picture may be complicated by coexisting urologic disease, such as an obstructing prostate in a man or urinary stress incontinence in a woman. The management of these problems, however, is not within the scope of this paper.

SUMMARY AND CONCLUSIONS

There are more than 4,500 cases of multiple sclerosis in the New England area; of these, 2,000 exist in Massachusetts. One-third of these patients suffer from distressing urinary symptoms, most of which can be successfully controlled by a plan of management in which the patient's pattern of living and the condition and behavior of his bladder are carefully considered. Anticholinergic drugs play an important part in the therapeutic plan, if they are used on an individual basis with due consideration of the various factors discussed.

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3. Lapidès, J., and Dodson, A. I., Jr.: Observations on Effect of Banthine in Urological Disturbances, read before the Section on Urology of the American Medical Association, Chicago, June 11, 1952. Draper, J. W.; Wolf, S.; Murphy, J. F., and Kravetz, H.: Effect of Banthine in the Treatment of Genito-Urinary Disorders, *J. Urol.* 69: 632-640, 1953.

NOCTURNAL AND INSULIN GASTRIC SECRETION

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and

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This study on normal inmates and inmates with duodenal ulcer in a penitentiary was undertaken to settle the question of whether an ulcer patient secretes more gastric juice than a normal person. Previous studies by other investigators have demonstrated that most duodenal ulcer patients secrete a higher nocturnal volume of gastric juice with a higher acidity than normal persons. Chalfen, in 1928, reported that normal subjects do not secrete acid during the night, in contradistinction to high acid secretion in ulcer patients. Winkelstein, in 1935, confirmed these findings; 45% of his normal subjects did not reveal any free hydrochloric acid. On the other hand, Sandweiss and associates,¹ in 1946, and Brown and co-workers,² in 1952, found no significant difference between the nocturnal secretion of normal persons and ulcer patients, when no retention was present in the latter group. A historical review of the literature on gastric secretion in normal persons and ulcer patients was presented by Sandweiss and associates³ and a critical evaluation of nocturnal secretion studies by Ivy and others.⁴

In our series, 97 secretion studies were made on 66 subjects—53 on 26 ulcer patients and 44 on 40 normal

subjects. Studies in which subjects withdrew before the tests were completed are not included. A few tests were invalidated by technical difficulties, such as obstruction of the Levin tube or its propulsion into the duodenum as determined by fluoroscopy.

PROCEDURE

The study was performed over a period of two years. All patients were men whose average age was 40 years, the variation being from 28 to 57 years. The majority of

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Dr. H. Necheles gave assistance and advice throughout the study and in the preparation of the manuscript.

This study was made at the Indiana State Penitentiary with the cooperation of Warden Alfred F. Dowd and the assistance of Drs. P. H. Weeks and P. C. Traver.

A preliminary report was read at the 19th International Physiological Congress, Montreal, Canada, 1953.

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1. Sandweiss, D. J.; Sugarman, M. H.; Podolsky, H. M., and Friedman, M. H. F.: Nocturnal Gastric Secretion, *J. A. M. A.* 130: 258 (Feb. 2) 1946.

2. Brown, G. M.; Purchase, E. C. R., and Bresnahan, T. J.: Nocturnal Gastric Contents in Duodenal Ulcer and Non-Ulcer Dyspepsia: Studies of Volume, Acidity and Peptic Activity, *Gastroenterology* 21: 331, 1952.

ulcer patients were studied from November, 1951, to May, 1952, and the normal subjects during the same months in 1952 and 1953. Thus, possible seasonal effects on gastric secretion were largely eliminated. The ulcer patients were selected carefully from a group of 156 men with a previous diagnosis of duodenal ulcer on the basis of the following four criteria: (a) the presence of typical epigastric distress with nocturnal pain; (b) distinct right upper quadrant point tenderness; (c) a definite ulcer crater shown by fluoroscopy and x-ray study; and (d) no other symptoms or disease.

The normal subjects were selected from a group of volunteers who had been imprisoned for a period of two or more years. Their medical history in the institution was checked, and the drug card was particularly examined to determine whether at any time they obtained antacids, Sippy powders, or alkali for treatment of any type of gastric distress. Any normal subject was rejected for the following reasons: (a) history of self-medication of antacids; (b) history of hospitalization for gastrointestinal disturbance, and (c) the presence of any type of disease. All were given physical examinations and, after the secretion studies, complete gastrointestinal x-ray

control period samples were collected for the Hollander insulin test. Then 15 units of insulin were given intravenously, and the samples of gastric juice were collected every 15 minutes for the following two hours. Blood sugar was determined by the method of Nelson.

RESULTS

All secretion experiments are summarized in table 1 and in the figure. In 34 normal subjects who secreted free acid, the volume of 12 hour nocturnal secretion ranged from 500 to 1,915 ml., with an average of 1,021 ml. The milliequivalents of total free hydrochloric acid secreted during this period varied from 13.5 to 105, with an average of 51. The Hollander insulin test showed a range from 89 to 491 ml. of gastric juice, with an average of 245 ml.; the milliequivalents of free hydrochloric acid ranged from 1.7 to 46.8, with an average of 17.9.

The results of 50 tests performed on 26 ulcer patients showed, in the 12 hour nocturnal secretion, a range from 210 to 2,025 ml., with an average of 945 ml. The milliequivalents of free hydrochloric acid ranged from 6.6 to 131, with an average of 49.6. The two hour Hollander insulin test produced a secretion in the ulcer patients with

TABLE 1.—Summary of All Tests on Normal Subjects and on Duodenal Ulcer Patients

		Nocturnal Gastric Secretion, 12 Hr.			Hollander Insulin Test		Uropepsin, Units per Hr.
		Volume, Ml.	Total Acid, mEq.	Pepsin Units per Ml.	Volume, Ml.	Total Acid, mEq.	
34 normal subjects.....	Mean	1,021	51.0	168	245	17.9	206
34 secretion tests.....	Variation	500-1,915	13.5-105.0	70-290	89-491	1.7-46.8	26-637
26 duodenal ulcer patients.....	Mean	945	49.6	150	222	14.8	160
50 secretion tests.....	Variation	210-2,025	6.6-131.0	30-275	53-411	2.0-32.0	23-281

series were performed. In this group, one patient with silent ulcer and one with prolapse of gastric mucosa were found; they were not included in the normal group.

For the study and work-up, all subjects were hospitalized for a period of at least two days and were fed a soft diet including eggs. Before the secretion tests, food and water were withheld for four and one-half hours. For the nocturnal secretion test, a large Levin tube was passed through the nose and the stomach was emptied for a period of 30 minutes before beginning the collection of the 12 hour secretion. Constant suction was employed by means of a Gomco suction pump. An attendant was assigned to each subject throughout the night for checking the Levin tubes at hourly intervals or more frequently for possible obstruction. The gastric juice was titrated for free and total acidity, and the pepsin content was determined by the method of Bucher, Grossman, and Ivy. A 12 hour urine specimen was collected during the period of nocturnal gastric secretion in 17 ulcer patients and 32 normal subjects, and uropepsin was estimated by a modification of Anson's method. A uropepsin unit was defined as that amount of enzyme that would release 1 mEq. $\times 10^{-4}$ of tyrosine in a 10 minute incubation period at 37°C. The following morning the Levin tubes were disconnected from the constant suction and two 15 minute

a range from 53 to 411 ml., with an average of 222 ml. The milliequivalents of free hydrochloric acid ranged from 2 to 32, with an average of 14.8.

Whenever a subject, whether normal or with a duodenal ulcer, showed no free acid in the 12 hour nocturnal secretion or in the insulin test, the test was not included in the averages in table 1. There were three duodenal ulcer patients without free acid in the 12 hour nocturnal secretion, but repeated tests showed a high secretion rate with high acidity, the total milliequivalents of free hydrochloric acid being 48, 56.7, and 29.5. Table 2 shows the results in 10 normal subjects who showed no free acid during a 12 hour nocturnal secretion test. The secretion studies were repeated on four of the subjects and showed values of 29 to 46 mEq. of hydrochloric acid. At this point of the study, it was decided to determine the amylase activity of the gastric contents whenever no free acid was present. Somogyi's amylase method was used, the gastric juice being diluted according to Free and Myers. By this means, we expected to demonstrate neutralization of acidity by regurgitation of duodenal fluids into the stomach. The normal subjects, patients 3 and 4 in table 2, with no free acid, showed 320 and 650 amylase units per milliliter, respectively. On repetition of the tests, free acid was present, but no amylase activity. The remaining six normal subjects showed similar results, namely amylase activity ranging from 440 to 1,530 units per milliliter of gastric juice in the absence of free acidity. We have interpreted this to mean that, in those tests

3. Sandweiss, D. J.; Friedman, M. H. F.; Sugarman, M. H., and Podolsky, H. M.: Nocturnal Gastric Secretion: II. Studies on Normal Subjects and Patients with Duodenal Ulcer, *Gastroenterology* 7: 38, 1946.
4. Ivy, A. C.; Grossman, M. I., and Bachrach, W. H.: *Peptic Ulcer*, New York, Blakiston Company, 1950, p. 696.

where no free acid was present, a significant amount of regurgitation of duodenal contents occurred, enough to neutralize whatever free acid was secreted. For this reason we have felt justified in not including in table 1 any nocturnal or insulin secretion test that showed no free acid.

TABLE 2.—Data on Normal Subjects with No Free Acid During Twelve Hour Nocturnal Secretion

Patient	Volume, Ml.	Free Acid, mEq.	Amylase, Units/Ml.
1 1st test.....	1,000	0	—
2nd test.....	716	40	—
2 1st test.....	1,025	0	—
2nd test.....	725	30	—
3 1st test.....	725	0	320
2nd test.....	770	42	0
4 1st test.....	735	0	650
2nd test.....	925	29	0
5	775	0	440
6	750	0	1,630
7	360	0	690
8	250	0	765
9	937	0	1,337
10	760	0	680

In table 3 the results of the 12 hour nocturnal secretion tests were regrouped according to rate of secretion of total milliequivalents of free hydrochloric acid. In group 1, with free acidity present in all tests, the averages of the normal subjects and of the duodenal ulcer patients were practically identical. However, when all tests, irrespective of presence or absence of free acid, were averaged (group 3) there was a significant difference between normal subjects and duodenal ulcer patients, namely, 39 and 47 mEq. of hydrochloric acid respectively. In group 4, values for those with a high secretion, an output of 60 mEq. and above, showed only a slightly higher average for the ulcer patients as compared to the normal subjects. Yet, in group 6 with low secretion, with 0 to 20 mEq., the duodenal ulcer patients averaged more than twice the milliequivalents of hydrochloric acid than the normal subjects. We could have shown a significant difference also between duodenal ulcer patients and normal subjects, had we compared the results of the high and medium secretion in ulcer patients of group 7 with the

TABLE 3.—Results of Twelve Hour Nocturnal Secretion Tests Grouped According to Rate of Secretion of Total mEq. of Free Hydrochloric Acid

Group	Category	Normal Subjects		Duodenal Ulcer Patients	
		No. of Tests	Average mEq. HCl	No. of Tests	Average mEq. HCl
1	Free acid.....	34	51.0	50	49.6
2	No free acid.....	10	0	3	0
3	All tests.....	44	39.0	53	47.0
4	High secretion *.....	10	75.1	15	85.2
5	Medium secretion †.....	21	41.0	27	40.0
6	Low secretion ‡.....	13	4.0	11	9.8
7	High and medium.....	31	54.0	42	56.0
8	Low and medium.....	34	28.5	38	32.0

* 60 mEq. and above.
† 20 to 60 mEq.
‡ 0 to 20 mEq.

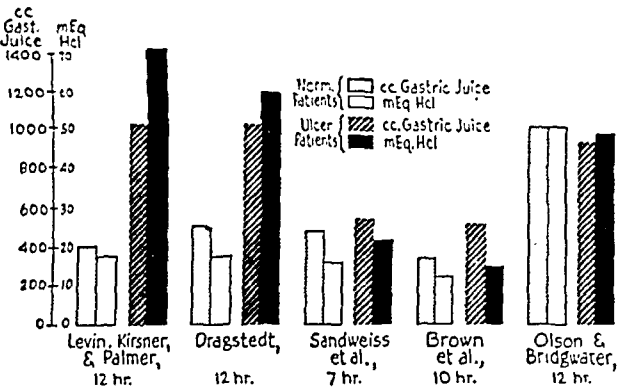
low and medium normal secretion of group 8, the values for the former being 56 and for the latter 28.5 mEq. of total free hydrochloric acid.

The values for uropepsin and pepsin in normal subjects and in ulcer patients, as determined in 12 hour urine and 12 hour gastric juice respectively, are compared in

table 1. In 34 normal subjects, the variation of uropepsin was from 26 to 637 units, with an average of 206 units per hour. The pepsin content of the gastric juice varied from 70 to 290 units, with an average of 168 units per milliliter. In 17 ulcer patients, uropepsin values varied from 23 to 281, with an average of 160 units per hour. The pepsin content of the gastric juice varied from 30 to 275, with an average of 150 units per milliliter.

COMMENT

Comparison of our results with those of other investigators must be limited to those in which continuous aspiration was used for collection of nocturnal secretion. Mears,⁵ in 1943, was the first to employ this method, while Chalfen, Winkelstein, Henning and Norpoth, and others have used intermittent aspiration. Mears⁵ reported that average volume and acidity were higher in 15 patients with duodenal ulcer than in 50 controls. However, his control subjects, as well as those of a number of other investigators, cannot be considered normal, because they were patients who had either chronic cholecystitis or recurrent appendicitis. In comparing our results with those of other investigators, therefore, we have



Comparison of results of nocturnal secretion studies with those reported by other investigators.

selected only those who have performed the study in a manner similar to our method.

In the figure, the values for nocturnal secretion in normal and ulcer patients, as reported by Brown and co-workers,² Sandweiss and associates,³ Levin, Kirsner, and Palmer,⁶ and Dragstedt⁷ are compared with our results. Of these five studies, two showed a significant difference between normal and ulcer patients (Levin, Kirsner, and Palmer⁶ and Dragstedt⁷). Brown and co-workers² and Sandweiss and associates,³ although they used shorter periods of collection, 7 and 10 hours respectively, did not obtain this marked difference, and our results are in agreement with their findings. Our normal subjects however, showed a higher volume and higher acid content than those of all other investigators. The normal subjects of Levin,⁶ Kirsner, and Palmer⁶ secreted 18.6 mEq. of hydrochloric acid, those of Dragstedt⁷ 18 mEq.,

5. Mears, F. B.: Effect of Atropine on Gastric Secretion During Night, Surgery 13: 214, 1943.
6. Levin, E.; Kirsner, J. B., and Palmer, W. L.: Continuous Twelve Hour Nocturnal Gastric Secretion in Normal Individuals and in Patients with Duodenal Ulcer After Twenty-Four Hour Fast, Gastroenterology 15: 454, 1950.
7. Dragstedt, L. R.: Rationale and Technic of Vagotomy, in Sandweiss, D. J., editor: Peptic Ulcer: Clinical Aspects, Diagnosis, and Management, Philadelphia, W. B. Saunders Company, 1951, p. 490.

those of Sandweiss and associates⁸ 17 mEq., and those of Brown and co-workers² 11 mEq., whereas our normal subjects secreted 51 mEq.

In an attempt to find the reasons for the discrepancy between our results and those of Levin, Kirsner, and Palmer and Dragstedt, the results of our nocturnal secretion tests were regrouped according to rate of secretion of total milliequivalents of free hydrochloric acid, as shown in table 3. Group 1 contains those persons who secreted free hydrochloric acid and it is seen that the difference between normal and duodenal ulcer patients was not significant. However, when all tests, i. e., those with and those without secretion of free acid, were averaged in group 3, the duodenal ulcer patients showed a higher rate of secretion of hydrochloric acid, 47 mEq., as compared to 39 mEq. for the normal persons. The tests were then broken down into groups with high secretion, i. e., secretion of 60 mEq. of hydrochloric acid or above; medium secretion, secretion between 20 and 60 mEq.; and low secretion, secretion between 0 and 20 mEq. Our results would have been similar to those of Sandweiss, recalculated for 12 hour periods, if our normal subjects and duodenal ulcer patients had all had low and medium secretion. In normal subjects, Sandweiss and associates³ obtained 17 mEq. during a 7 hour nocturnal period, whereas we obtained 28.5 mEq. during a 12 hour nocturnal period in group 8, with low and medium secretion. In duodenal ulcer patients, Sandweiss and associates³ obtained 22 mEq. for 7 hours, and we obtained 32 mEq. for 12 hours in group 8, with low and medium secretion. On the other hand, we could have shown results in duodenal ulcer patients similar to those of Dragstedt,⁷ if our subjects had been grouped as follows. If all our ulcer subjects had had high and medium secretion, group 7, the average of 42 tests would be 56 mEq. of hydrochloric acid, as compared to 60 mEq. in Dragstedt's series. It would appear, therefore, that the type of patient and the experimental procedure employed would greatly influence the amount of nocturnal gastric acid secretion obtained. As table 2 illustrates, one can obtain almost any average if negative secretion tests (no secretion of free acid) for individual patients are included in a series. It was explained above that second tests yielded high amounts of free acid and that the negative tests were due to regurgitation. Our data indicate that regurgitation and neutralization of gastric acid may occur more frequently in normal subjects than in patients with duodenal ulcer.

It is well known that duodenal ulcer patients are persons under considerable tension. In a study of normal subjects for comparison with duodenal ulcer patients, therefore, it would be necessary to obtain the normal persons from the same environment and to perform the tests under the same conditions. The practice of using hospitalized patients as normal subjects cannot give a

true comparison. Of equal importance is the question of whether a fair comparison can be made by using medical students or hospital personnel as normal subjects when they are familiar with the tests. We feel strongly that normal subjects should be those persons who are in the same environment, under the same tension and stress as the ulcer patient. It is for this reason that we selected the penitentiary for the study of nocturnal secretion.

There are several possible explanations as to why normal prisoners have a higher level of acid secretion than normal persons on the outside. It can be pointed out that a prison environment is far from normal and that all men are under considerable emotional tension, having a great deal of hostility, resentment, fears, and anxiety, all of which are difficult to eliminate in the abnormal environment of a penitentiary. In other words, these men are living under constant stress and this fact may be reflected in the high uropepsin output in the urine. It has been shown by Spiro and others⁸ that administration of corticotropin (ACTH) or cortisone can cause a marked increase in uropepsin output in the urine. Janowitz, Levy, and Hollander⁹ reported normal uropepsin values to be 47 units per hour, whereas we obtained an average of 206 units per hour for the normal prisoner, more than four times the reported normal average; on the other hand, our values for duodenal ulcer patients of 180 units per hour of uropepsin are similar to those of 160 units per hour, reported by Janowitz, Levy, and Hollander.⁹

Concerning the peptic activity of the gastric juice, our findings differ from those of Brown and associates.² They found twice the value of pepsin secretion in the duodenal ulcer patient as compared to normal controls, whereas we observed the same peptic activity in normal subjects and in duodenal ulcer patients.

It has been demonstrated by Gray and others,¹⁰ Zubiran, Kark, and Dragstedt,¹¹ and others that corticotropin and cortisone increase the secretion of gastric juice. Therefore, it can be postulated that, as a result of the chronic stress men are exposed to in a penitentiary, there is a marked increase in adrenal cortical activity due to the stimulation by corticotropin from the pituitary. This results in an increased secretion of a number of adrenal steroid hormones including cortisone. Some of these hormones stimulate the stomach to secrete gastric juice and pepsinogen, producing high volumes of acid gastric juice and a high uropepsin output.

A complete survey of the entire population of the prison, 2,400 men, revealed a high incidence of gastrointestinal complaints. This will be reported in a subsequent paper. We mention this because it is to be expected that, when normal men secrete amounts of gastric juice of such high acidity, there would be a considerable number of such symptoms. Having the physiological evidence, namely, that these normal men secrete so much acid, steps should be taken to alleviate the harmful effects of this hypersecretion. The first step would be to be cognizant of the fact that the men complaining of gastrointestinal symptoms may have justification for their complaints and that adequate medical therapy directed toward correcting the symptoms is necessary. The second factor in combating this hypersecretion in inmates of a penitentiary is to consider drastic changes in diet. There are more suggestions that could be entertained, but we

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9. Janowitz, H. D.; Levy, M. H., and Hollander, F.: Diagnostic Significance of Urinary Pepsinogen Excretion in Diseases of Upper Gastrointestinal Tract, *Am. J. M. Sc.* 220: 679, 1950.

10. Gray, S. J.; Benson, J. A.; Reifstein, R. W., and Spiro, H. M.: Chronic Stress and Peptic Ulcer, *J. A. M. A.* 147: 1529 (Dec. 15) 1951.

11. Zubiran, J. M.; Kark, A. E., and Dragstedt, L. R.: Effect of ACTH on Gastric Secretion in Experimental Animals, *Gastroenterology* 21: 276, 1952.

believe that, to rehabilitate a man successfully, he first must be free of symptoms. A person who has a hyper-secreting stomach and who has no means of neutralizing the acidity would be less amenable to rehabilitation than one who is symptom-free.

We wish to reemphasize that, whenever a person secretes no free acid for 12 hours, this need not represent the true secretory ability of his stomach. Repeated tests (table 2) have shown that, in seven cases in which no free acid was obtained in the first test, the men were able to secrete large amounts of acid in subsequent tests. The finding of a relatively high amylase content in a gastric juice with no free acid suggests that considerable regurgitation of duodenal contents has neutralized the free acid. Earlier investigators, particularly Winkelstein, found a high incidence of absence of free acid in normal subjects, an incidence of 45%, which is higher than reported by others. The evidence that we present here shows quite definitely that the normal stomach may secrete free acid when tests are repeated. For this reason, whenever we obtained results in nocturnal or insulin secretion studies that showed no free acid, they were not included in the averages. Brown and co-workers² suggest, however, that such a procedure does not represent the true character of nocturnal gastric secretion. They state that "gastric contents are the sum of gastric secretion, swallowed saliva and regurgitation of various duodenal contents, and it is misleading to suggest that it is only gastric secretion which is being studied." We agree with this statement, but we want to add that the method

of collecting secretion involves many inaccuracies, the greatest of which may be the collection of a combination of duodenal regurgitation and gastric juice. Hence, the greatest source of error in the procedure may occur when gastric acidity is low or absent; on the other hand, when there is high acidity, we can be more certain of ascertaining accurately the true capacity of the stomach to secrete. The fact that we obtained no difference in the two hour Hollander insulin tests between normal and ulcer patients adds further evidence that there is no great difference between the secretory capacity of the stomach of a normal person and of an ulcer patient.

SUMMARY

Twelve hour nocturnal gastric secretion studies showed that normal men in a penitentiary secrete a larger volume and more acid than normal subjects as reported by others. Comparison of the 12 hour night secretion of normal subjects and of duodenal ulcer patients showed no significant difference in volume and acidity, and the gastric secretory response to the Hollander insulin test showed no significant difference between normal and ulcer patients. The uropepsin concentration in a 12 hour urine specimen was higher in normal men in a penitentiary than in normal men reported on by others. However, uropepsin secretion was the same in the normal and in the ulcer group. The peptic activity of the 12 hour nocturnal gastric secretion was the same in both groups of subjects studied.

29th St. and Ellis Ave. (16) (Dr. Olson).

VERTEBRAL FRACTURES AS A COMPLICATION OF ELECTROCONVULSIVE THERAPY

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and

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One of the complications of convulsive seizures, regardless of etiology, is compression fracture of the vertebrae. Lehdorff¹ first reported this occurring in tetanus. Reed and Dancy² and Cook and Sands³ found an incidence of 34.2% and 10.4% respectively in groups of patients with idiopathic epilepsy. After the introduction of pentylenetetrazol (Metrazol) shock treatment, Stalker and Wespi were the first of many to report on the incidence of such fractures with this form of therapy. The reported incidence has varied from 0.375% to 47%.⁴ However, in the majority of these papers the number of cases was small, and the design of the studies raised doubts concerning their statistical validity. In the first adequate study of a large series of cases by roentgenograms before and after pentylenetetrazol therapy, Easton and Sommers^{4a} reported an incidence of 26.1% fractures in a series of 800 cases. The study included both men and women of ages ranging from 13 to 66 years. The incidence of fractures in men was 37.2%; in women it was 16.8%. On the basis of their study, the authors also concluded that the fifth, fourth, and sixth thoracic vertebrae were most commonly involved, in that order; the

incidence of fractures doubled with preexisting osteoporosis; the preexistence of kyphosis, scoliosis, arthritis, nuclear change, or old fracture did not predispose the patient to further fracture; and the age of the patient was not a significant factor.

Most of the studies⁵ on the incidence of these fractures in electroconvulsive therapy (ECT) were not adequately controlled, with the result that it is difficult to evaluate the variations of incidence reported. Lingley and Robbins,⁶ in a well-regulated study of 230 patients by roentgenograms before and after ECT, reported an over-all incidence of 23% vertebral fractures. The inci-

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Dr. Frederick N. Zuck of the Department of Orthopedics and Dr. George H. Ramsey of the Department of Radiology helped in this study, and statistical analysis was carried out on all results by Dr. Howard Axelrod of the Department of Psychology.

1. Lehdorff, H.: Deformities of Vertebral Column and Ribs in Cases of Severe Tetanus, *Wien. med. Wchnschr.* 67: 2477, 1907.

2. Reed, G. E., and Dancy, T. E.: Compression Fractures of Vertebral Bodies Following Induced and "Idiopathic" Convulsions, *Canad. M. A. J.* 42: 38, 1940.

3. Cook, L. C., and Sands, D. E.: Spinal Injuries in Convulsive Therapy, *J. Ment. Sc.* 87: 230, 1941.

dence in men was 37%; in women, 13.2%. In patients with osteoporosis, the incidence was 43%. The most commonly fractured vertebrae were the fourth and fifth thoracic; younger and older persons were chiefly affected.

When Meschan and co-workers⁷ studied 212 male patients receiving ECT, they took preshock roentgenograms, films following each of the first five treatments, and films following the 10th, 15th, 20th, and final treatments. The incidence of vertebral fracture in this group was 35.4%, with the third, fourth, and fifth thoracic vertebrae being most prominently affected. The average number of vertebrae fractured was 2.5 per patient. It was their opinion that the age group 30 to 39 was more liable to fracture than any other age group from 20 to 60 years. There was a high correlation between anterior narrowing of any vertebral bodies on the control film and subsequent fracture. Other factors studied, such as race or presence of spondylosis, kyphosis, or Schmorl's nodes, had no relation to the incidence of fracture. Meschan, Scruggs, and Calhoun did not feel qualified on the basis of their study to make any statement about osteoporosis as a factor in these fractures. In almost two-thirds of the patients, the fractures occurred during the first three treatments and, in four-fifths, within the first five treatments. In 41 cases in which treatment was begun with curare, the incidence of fracture was 19.5%; from 57 cases in which curare was administered after fracture, the authors concluded that the use of the relaxant did not help in preventing further progression of the fracture or the occurrence of a new fracture. Only 13 of 212 patients complained of back pain, and 8 of these had fractures.

DESIGN OF STUDY

Our objective was to provide data regarding the following questions: (1) the incidence of fracture of the spine with and without muscle relaxants; (2) the effects of age, sex, bony structure of the spine, and Glissando and Direct methods of treatment on the fracture incidence; (3) location and severity of fractures; and (4) the incidence of asymptomatic fractures and fractures with minimal transient symptoms. The case material for this study was selected from 1,180 men and women admitted to the two floors for psychiatric patients of the Strong Memorial Hospital and Rochester Municipal Hospital during a 13 month period beginning Jan. 1,

4. (a) Cook and Sands.³ (b) von Meduna, L., and Friedman, E.: Convulsive-Irritative Therapy of Psychoses, *J. A. M. A.* 112: 501 (Feb. 11) 1939. (c) Polatin, P.; Friedman, M. M.; Harris, M. M., and Horwitz, W. A.: Vertebral Fractures Produced by Metrazol-Induced Convulsions in Treatment of Psychiatric Disorders, *ibid.* 112: 1684 (April 29) 1939. (d) Bennett, B. T., Jr., and Fitzpatrick, C. P.: Fractures of Spine Complicating Metrazol Therapy, *ibid.* 112: 2240 (June 3) 1939. (e) Hamsa, W. R., and Bennett, A. E.: Traumatic Complications of Convulsive Shock Therapy, *ibid.* 112: 2244 (June 3) 1939. (f) Krause, G. R., and Langsam, C. L.: Fractures of Vertebrae Following Metrazol Therapy, *Radiology* 36: 725, 1941. (g) Easton, N. L., and Sommers, J.: Vertebral Fractures in Metrazol Therapy With and Without Use of Curare as Supplement, *J. Nerv. & Ment. Dis.* 99: 256, 1944.

5. (a) Impastato, D. J., and Almansí, R.: Electrofit in Treatment of Mental Disease, *J. Nerv. & Ment. Dis.* 96: 395, 1942. (b) Impastato, D. J., and Almansí, R.: Study of Over 2,000 Cases of Electrofit-Treated Patients, *New York J. Med.* 43: 2057, 1943. (c) Worthing, H. J., and Kalinowsky, L.: Question of Vertebral Fractures in Convulsive Therapy and in Epilepsy, *Am. J. Psychiat.* 98: 533, 1942. (d) Gralnick, A.: Three-Year Survey of Electroshock Therapy, *ibid.* 102: 583, 1946. (e) Weinland, W. L.: On Incidence of Fractures in Electro-Shock Treatment, *Nervenarzt* 22: 298, 1951.

6. Lingley, J. R., and Robbins, L. L.: Fractures Following Electroshock Therapy, *Radiology* 48: 124, 1947.

7. Meschan, I.; Scruggs, J. B., Jr., and Calhoun, J. D.: Convulsive Fractures of Dorsal Spine Following Electric-Shock Therapy, *Radiology* 54: 180, 1950.

1952. Of these, 263 patients received electroconvulsive therapy. A total of 285 courses of treatment (24.1%) were given to these patients, as 22 of them had 2 courses during the period of study. All of the following data are based on 285 courses of ECT. There were 68 men and 195 women, ranging in age from 14 to 76 years. From 1 to 21 treatments per course of ECT were given, the average number of treatments per patient being 7.5.

Technique.—Before and after each course of treatment a roentgenogram of the lateral dorsolumbar spine was taken. During the course of treatment any complaint of back pain, however minimal, was investigated by additional roentgenograms. In all instances, films were taken by the same technique so that comparison was possible. All patients were treated as they lay supine on a semi-padded examination table. The convulsive movements were allowed to follow their own pattern with the exception that light manual restraint was applied to the extremities. A lumbar pad or pad to hyperextend the spine was not used. A rolled gauze mouth gag was used. The electric shock was given by a Med Craft model B-24 machine, which is equipped to deliver the current by the Direct or Glissando methods. With each group the Glissando method was used for six months and the Direct method for the remainder of the study, so that 147 patients were treated by the former and 138 by the latter methods. For various reasons 27 of these Direct method courses and 27 Glissando method courses of treatment were begun and maintained with the muscle relaxant decamethonium bromide (Syncurine). Separate results will be given for the groups treated with and without decamethonium bromide. The dosage of this drug was gaged individually and was considered adequate when there was no resistance to passive stretching during the tonic phase of the convulsion.

Patients Treated Without Decamethonium Bromide.—In the 231 courses of treatment without decamethonium bromide, there were 48 compression fractures of the spine, an over-all incidence of 20.8%. The incidence of fractures in the male population was significantly higher than in the women. Twenty-four out of 56 men, or 42.9%, sustained thoracic fractures, whereas 24 out of 175 women, or 13.7%, sustained such fractures. Although the greatest percentage of fractures occurred in patients under 40 years of age, the number of cases in each age group was so small that this result was not statistically significant (see table).

Direct Versus Glissando: The over-all fracture incidence when the Direct method was used was 25 fractures in 111 courses given, or 22.6%. In 120 courses of treatment given by the Glissando method, there were 23 fractures, or 19.2%. The breakdown of this factor into sexes indicates that, in 13 out of 23 (56.5%) courses of treatment given to men by the Direct method, fractures occurred. In 33 courses of treatment given to men by the Glissando method, 11 fractures (33.3%) occurred. Although not statistically significant, these data would suggest that immediate delivery of a maximal current in men may be conducive to a higher incidence of fracture. In the 88 and 87 women treated by the Direct and Glissando methods respectively, there were 12 fractures in each group, an incidence of 13.6% and 13.8%.

Effect of Bony Structure: Of 163 courses of treatment given to patients with normal preshock roentgenograms of the spine, there were 34 (20.9%) fractures, whereas in 23 courses given to patients whose initial films indicated any degree of osteoporosis there were 10 (43.5%) fractures. This difference is statistically significant. Of 43 courses of treatment given to patients whose roentgenograms showed degenerative and other changes (such as old fractures, epiphysitis, narrowing of vertebral bodies, kyphoscoliosis, and anterior wedging of bodies), 5 fractures (11.6%) occurred. This difference is not statistically significant when compared with the fracture incidence in patients with normal preshock films.

Location and Severity of Fractures: The number of vertebrae fractured per patient ranged from one to six, with an average of 2.2 per patient. All vertebral fractures occurred in the dorsal area of the spine, with the fifth, fourth, and sixth thoracic vertebrae respectively being most commonly involved to a statistically significant degree. Fractures were considered serious if the degree of compression exceeded by more than one-third the original height of the vertebral body. Of the 49 patients with fractures, there were two such cases. All other fractures consisted of minimal compression of the superior cortical plates of the vertebral bodies.

Treatment During Which Fracture Occurred: In 34 cases the treatment was determined during which the fracture occurred. Twenty-four fractures (70.6%) occurred in the first three treatments while 10 occurred in later treatments. That the majority of fractures occur in the first three treatments is statistically significant.

Symptoms: In the 231 courses of ECT given, 45 patients complained of back pain, and therefore roentgenograms were taken during these courses of ECT. Of these, 34 (75.6%) had fractures. The presence of pain as an indication of fracture is not only statistically significant but is also a strong indication for roentgenographic study. With the exception of two patients with moderately severe persistent pain, all patients had mild and transitory symptoms that consisted of interscapular pain, and, in a few patients, radicular pain corresponding to the level of fracture. However, that fracture may occur without pain is indicated by the fact that 15 (30.6%) of the 49 patients who had fractures were without symptoms, and the fracture was discovered only by routine postshock films.

Other Serious Complications: There were other complications as follows: fracture of neck of humerus, one; avulsion of lesser tuberosity of the humerus, one; dislocation of shoulder, two; dislocation of mandible, two; tear of anterior tibial ligament, one; tear of shoulder capsule, one.

Patients Treated with Decamethonium Bromide.—Fifty-four courses of ECT were begun and maintained with decamethonium bromide. In these, 27 patients were treated by the Glissando method and the rest by the Direct method; there were 8 men and 19 women in each group. Of these 54 patients, 45 were over 50 years old. Analysis of the preshock films in these patients is as follows: negative, 6; osteoporosis, 13; degenerative changes, 14; old fracture, 18; kyphoscoliosis, 3. Of this entire group only one patient (1.9%) sustained a vertebral fracture. This incidence compared with the incidence of

fractures in patients who received ECT without a muscle relaxant is highly significant. In 32 of the 34 patients whose fracture was diagnosed during the course of ECT, treatment was continued with decamethonium bromide. Seven of these patients (21.9%) showed either progression of the already existing fracture or new fracture of adjacent vertebrae. Among these patients there were no other serious complications.

COMMENT

The results of our study substantiate the previously known facts that fractures are more likely to occur in men than in women, that age has no statistical value in predicting the occurrence of a fracture, that the fifth,

Incidence of Fracture During Electroconvulsive Therapy

Age, Yr.	Patients Who Began Without Decamethonium Bromide		Number of Fractures		Percent of Fractures		Patients Who Began With Decamethonium Bromide	
	Males	Fe- males	Males	Fe- males	Males	Fe- males	Males	Fe- males
Glissando								
Under 20	0	0	0	0	....	....	0	0
20-29	2	8	1	2	50	25	1	0
30-39	7	23	3	4	42.8	17.4	1	1
40-49	7	21	3	2	42.8	9.5	0	1
50-59	9	19	2	3	22.2	15.8	0	7
60-69	7	15	2	1	28.6	6.7	5	7
70-above	1	1	0	0	....	....	1	3
Total	33	87	11	12	33.3	13.8	8	19
Direct								
Under 20	0	3	0	1	....	33.3	0	0
20-29	2	15	2	3	100	20	0	0
30-39	3	18	2	2	66.7	11.1	0	3
40-49	4	15	4	1	100	6.7	1	1
50-59	8	25	3	3	37.5	12	2	6
60-69	5	8	2	1	40	12.5	2	6
70-above	1	4	0	1	....	25	3	3
Total	23	88	13	12	56.5	13.6	8	19
Combined								
Under 20	0	3	0	1	....	33.3	0	0
20-29	4	23	3	5	75	21.7	1	0
30-39	10	41	5	6	50	14.6	1	4
40-49	11	36	7	3	63.6	8.3	1	2
50-59	17	44	5	6	29.4	13.6	2	13
60-69	12	23	4	2	33.3	8.7	7	13
70-above	2	5	0	1	....	20	4	6
Total	56	175	24	24	42.9	13.7	16	38

All figures listed as statistically significant showed a chi square validation of at least $P < 0.02$.

fourth, and sixth dorsal vertebrae respectively are most commonly affected, that most fractures occur during the first three treatments, and that the use of muscle relaxants significantly reduces the incidence of fracture.

Although there has been general agreement concerning these facts, there has been much disagreement on the prevalence of these fractures. We feel it is significant and of interest that in those series similar to ours in which large numbers of patients were studied by roentgenograms taken before and after ECT,⁸ there is a high concordance with our results, both as to over-all incidence and as to its variation according to sex difference. This is in sharp contrast to those series reported in which routine x-ray investigations were not carried out. From the above data and the fact that 15 of our 49 fractures caused

8. Easton and Sommers,^{4c} Lingley and Robbins,⁶ Meschan.⁷

no symptoms and were discovered only on the film that is taken as routine procedure after ECT, we have concluded that any accurate evaluation of the incidence of these fractures must include films taken both before and after ECT. Clinical facts substantiate this viewpoint because frequently the only thing visible by roentgenogram is minimal compression of the superior plates of the vertebrae, so that, unless a control film is available for comparison, these fractures might be overlooked entirely. The majority of fractures occur early in the course of treatment while the patients are likely to be most inaccessible and when it would be most difficult to elicit the transient pain that accompanies these fractures. This point is illustrated by the fact that Weinland,⁵⁶ in a study of 418 patients using presence of pain as the criterion for x-ray examination, found the incidence of fractures among schizophrenic patients to be one-fifth as high as among depressed patients. He attributes this to the fact that the nature of the schizophrenic illness is such that these patients complain less of physical pain. Analysis of the 15 patients of our series in whom symptoms of fracture were not elicited indicates that 8 of them were severely disturbed and inaccessible at the time ECT was begun. One other patient had a moderate language barrier, and another showed moderate hypochondriasis as part of the presenting illness, so that any back pain may have been masked by the other symptoms. Although pain is not a consistent accompaniment of fracture, its importance is indicated by the fact that 75.6% of our patients who complained of back pain had fractures.

From our series it would seem that the only physical factor that definitely predisposes a patient to fracture is the presence of osteoporosis. Our finding that the incidence of fracture with preexisting osteoporosis is more than double the general incidence confirms the almost identical finding of Easton and Sommers,⁴⁸ who used pentylene-tetrazol, and Lingley and Robbins,⁶ who used ECT.

Although we cannot statistically support the following hypothesis, it is our impression that a strong muscle mass with violent muscular contraction predisposes to fracture. This is supported by the consistently higher incidence of fractures in men in all series reported. Since the actual mechanism of fracture is still unknown, there have been many attempts to prevent occurrence of fracture by modifications in the technique of administering ECT. These modifications have involved the positioning of the patient, the method of restraint, and the means of initiating the electric shock. Our decision not to hyperextend the spine and to allow freedom of convulsive movements evolved from the feeling that active restraint would predispose to long bone fractures, which are of much greater clinical significance than vertebral fractures. The fact that the incidence of vertebral fractures very closely approximates that of Meschan⁷ (in men) and Lingley and Robbins⁶ (in men and women), despite the fact that in both these series greater restraint and hyperextension were used, indicates that position of the patient and method of restraint are not significant factors. In regard to the method of initiating the electric shock, our re-

sults comparing the Glissando and Direct methods indicate that this variation produces no appreciable change in the fracture incidence.

From our results it would appear that the only variation in technique that affects the incidence of fractures is the use of a muscle relaxant, as indicated by the fact that the over-all fracture rate fell from 20.8% to 1.9% with decamethonium bromide. The efficacy of this modification in our series contrasts with the 19.5% incidence of fractures found by Meschan⁷ with curare. It should be noted, however, that 21.9% of our patients who received decamethonium bromide after sustaining a fracture showed progression of the existing fracture or occurrence of a new fracture. In Meschan's⁷ series, 46.6% of his patients who received curare after fracture occurred showed progression of fracture or appearance of a new fracture. These data suggest that muscle relaxants are more effective in the prevention of an initial fracture than in arresting the progression of such fracture or in preventing the appearance of a new fracture.

We are in agreement with previous studies that have indicated that the presence of these fractures is of little clinical significance in the vast majority of cases. The initial symptoms, if present, are minimal and transient and impose little orthopedic disability. Polatin and Linn⁹ found no orthopedic or neurological sequelae in their 10 year follow-up of patients sustaining compression fractures during pentylene-tetrazol treatment. In none of our cases, including the two "serious" fractures, was orthopedic treatment thought necessary by the consultant.

Despite the relative unimportance of these fractures, it is of obvious advantage to both the patient and the physician to prevent their occurrence when possible. It has been our practice to use a muscle relaxant prophylactically in those patients whose preshock examination shows findings that would predispose to fracture, such as osteoporosis or large muscle mass. Our figures and the data of others⁷ indicate that muscle relaxants are not completely effective in preventing the progression or further occurrence of fracture, but as yet there is no statistically reliable series to show what the incidence of this progression would be in continuing treatment after fractures without the use of such relaxants. Until such data are available, we shall continue the use of these relaxants routinely in those patients who have sustained fractures and in whom it was indicated to continue treatments.

SUMMARY

Two hundred and eighty-five consecutive courses of electroconvulsive therapy (ECT) given in a general hospital were studied by means of preshock and postshock roentgenograms to discover the incidence of vertebral fracture. In 72 courses of ECT given to men and 213 courses of ECT given to women, the over-all fracture incidence was 20.8%. The rate in men was 42.9%; in women, 13.7%. Fifty-four patients began ECT with decamethonium bromide (Syncurine) with a resultant fracture incidence of 1.9%. Osteoporosis and sex of the patient were significant in the incidence of fractures. Age, position of patient, restraint, and method of initiating the current did not influence the fracture incidence. The indications for use of muscle relaxants are discussed.

CLINICAL NOTES

CARDIAC ARREST AFTER INTRAVENOUS ADMINISTRATION OF PROCAINE AMIDE (PRONESTYL)

REPORT OF A CASE IN WHICH THERE WAS SUBSEQUENT RECOVERY

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The quinidine-like properties of procaine on the heart have been known for a long time, but the drug is so rapidly hydrolyzed in the blood stream that the action on the heart is rather unpredictable. Lately procaine amide (Pronestyl) hydrochloride has gained wide use in cardiac arrhythmias. Procaine amide is not hydrolyzed by the body enzymes as quickly as procaine, is therefore longer acting, and has been found to be active when administered orally. Procaine amide can be given intravenously with greater safety than quinidine and on occasion may revert a cardiac arrhythmia to normal sinus rhythm even after quinidine failure.¹ L. C. Mark and co-workers² and Goldberg and Cotten³ have done excellent experimental work on dogs in cardiac arrhythmias and have proved the value of procaine amide in prevention and control of ventricular arrhythmias.

Procaine amide was used successfully on human beings for the treatment of ventricular premature contractions and ventricular arrhythmias. Stearns and co-workers⁴ were able to abolish ventricular tachycardia in 7 out of 8 patients, and Kayden and associates⁵ reverted ventricular tachycardia in 13 of 15 patients to normal sinus rhythm with procaine amide given intravenously. Main-

zer⁶ found procaine amide used intravenously to be the drug of choice in the treatment of paroxysmal ventricular tachycardia during anesthesia, particularly for thoracic surgery.

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no symptoms and were discovered only on the film that is taken as routine procedure after ECT, we have concluded that any accurate evaluation of the incidence of these fractures must include films taken both before and after ECT. Clinical facts substantiate this viewpoint because frequently the only thing visible by roentgenogram is minimal compression of the superior plates of the vertebrae, so that, unless a control film is available for comparison, these fractures might be overlooked entirely. The majority of fractures occur early in the course of treatment while the patients are likely to be most inaccessible and when it would be most difficult to elicit the transient pain that accompanies these fractures. This point is illustrated by the fact that Weinland,⁵⁶ in a study of 418 patients using presence of pain as the criterion for x-ray examination, found the incidence of fractures among schizophrenic patients to be one-fifth as high as among depressed patients. He attributes this to the fact that the nature of the schizophrenic illness is such that these patients complain less of physical pain. Analysis of the 15 patients of our series in whom symptoms of fracture were not elicited indicates that 8 of them were severely disturbed and inaccessible at the time ECT was begun. One other patient had a moderate language barrier, and another showed moderate hypochondriasis as part of the presenting illness, so that any back pain may have been masked by the other symptoms. Although pain is not a consistent accompaniment of fracture, its importance is indicated by the fact that 75.6% of our patients who complained of back pain had fractures.

From our series it would seem that the only physical factor that definitely predisposes a patient to fracture is the presence of osteoporosis. Our finding that the incidence of fracture with preexisting osteoporosis is more than double the general incidence confirms the almost identical finding of Easton and Sommers,⁴⁸ who used pentylentetrazol, and Lingley and Robbins,⁶ who used ECT.

Although we cannot statistically support the following hypothesis, it is our impression that a strong muscle mass with violent muscular contraction predisposes to fracture. This is supported by the consistently higher incidence of fractures in men in all series reported. Since the actual mechanism of fracture is still unknown, there have been many attempts to prevent occurrence of fracture by modifications in the technique of administering ECT. These modifications have involved the positioning of the patient, the method of restraint, and the means of initiating the electric shock. Our decision not to hyperextend the spine and to allow freedom of convulsive movements evolved from the feeling that active restraint would predispose to long bone fractures, which are of much greater clinical significance than vertebral fractures. The fact that the incidence of vertebral fractures very closely approximates that of Meschan⁷ (in men) and Lingley and Robbins⁶ (in men and women), despite the fact that in both these series greater restraint and hyperextension were used, indicates that position of the patient and method of restraint are not significant factors. In regard to the timing of initiating the electric shock, our re-

sults comparing the Glissando and Direct methods indicate that this variation produces no appreciable change in the fracture incidence.

From our results it would appear that the only variation in technique that affects the incidence of fractures is the use of a muscle relaxant, as indicated by the fact that the over-all fracture rate fell from 20.8% to 1.9% with decamethonium bromide. The efficacy of this modification in our series contrasts with the 19.5% incidence of fractures found by Meschan⁷ with curare. It should be noted, however, that 21.9% of our patients who received decamethonium bromide after sustaining a fracture showed progression of the existing fracture or occurrence of a new fracture. In Meschan's⁷ series, 46.6% of his patients who received curare after fracture occurred showed progression of fracture or appearance of a new fracture. These data suggest that muscle relaxants are more effective in the prevention of an initial fracture than in arresting the progression of such fracture or in preventing the appearance of a new fracture.

We are in agreement with previous studies that have indicated that the presence of these fractures is of little clinical significance in the vast majority of cases. The initial symptoms, if present, are minimal and transient and impose little orthopedic disability. Polatin and Linn⁹ found no orthopedic or neurological sequelae in their 10 year follow-up of patients sustaining compression fractures during pentylentetrazol treatment. In none of our cases, including the two "serious" fractures, was orthopedic treatment thought necessary by the consultant.

Despite the relative unimportance of these fractures, it is of obvious advantage to both the patient and the physician to prevent their occurrence when possible. It has been our practice to use a muscle relaxant prophylactically in those patients whose preshock examination shows findings that would predispose to fracture, such as osteoporosis or large muscle mass. Our figures and the data of others⁷ indicate that muscle relaxants are not completely effective in preventing the progression or further occurrence of fracture, but as yet there is no statistically reliable series to show what the incidence of this progression would be in continuing treatment after fractures without the use of such relaxants. Until such data are available, we shall continue the use of these relaxants routinely in those patients who have sustained fractures and in whom it was indicated to continue treatments.

SUMMARY

Two hundred and eighty-five consecutive courses of electroconvulsive therapy (ECT) given in a general hospital were studied by means of preshock and postshock roentgenograms to discover the incidence of vertebral fracture. In 72 courses of ECT given to men and 213 courses of ECT given to women, the over-all fracture incidence was 20.8%. The rate in men was 42.9%; in women, 13.7%. Fifty-four patients began ECT with decamethonium bromide (Syncurine) with a resultant fracture incidence of 1.9%. Osteoporosis and sex of the patient were significant in the incidence of fractures. Age, position of patient, restraint, and method of initiating the current did not influence the fracture incidence. The indications for use of muscle relaxants are discussed.

260 Crittendon Blvd. (20) (Dr. Dewald).

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CLINICAL NOTES

CARDIAC ARREST AFTER INTRAVENOUS ADMINISTRATION OF PROCAINE AMIDE (PRONESTYL)

REPORT OF A CASE IN WHICH THERE WAS SUBSEQUENT RECOVERY

William Weingarten, M.D.

Nicholas J. Galluzzi, M.D.

and

Alexander A. Doerner, M.D., Staten Island, N. Y.

The quinidine-like properties of procaine on the heart have been known for a long time, but the drug is so rapidly hydrolyzed in the blood stream that the action on the heart is rather unpredictable. Lately procaine amide (Pronestyl) hydrochloride has gained wide use in cardiac arrhythmias. Procaine amide is not hydrolyzed by the body enzymes as quickly as procaine, is therefore longer acting, and has been found to be active when administered orally. Procaine amide can be given intravenously with greater safety than quinidine and on occasion may revert a cardiac arrhythmia to normal sinus rhythm even after quinidine failure.¹ L. C. Mark and co-workers² and Goldberg and Cotten³ have done excellent experimental work on dogs in cardiac arrhythmias and have proved the value of procaine amide in prevention and control of ventricular arrhythmias.

Procaine amide was used successfully on human beings for the treatment of ventricular premature contractions and ventricular arrhythmias. Stearns and co-workers⁴ were able to abolish ventricular tachycardia in 7 out of 8 patients, and Kayden and associates⁵ reverted ventricular tachycardia in 13 of 15 patients to normal sinus rhythm with procaine amide given intravenously. Main-

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due to obstruction. This green speckling is, however, not pathognomonic of extrahepatic obstruction, since it is occasionally observed in hepatitis with marked biliary stasis, especially the cholangiolitic type. It is not only the macroscopic appearance that is deceptive, for it is in these very cases that the histological picture often fails to differentiate between parenchymal and obstructive jaundice. The green speckling is not destroyed by fixation, but is rather accentuated since the fixative bleaches the rest of the lobule.

In viral and toxic hepatitis and in jaundice complicating cirrhosis, the specimen is pale and uniformly icteric, without any green speckling. If some speckling is present, it is usually slight and, apart from cholangiolitic hepatitis, never approaches the speckling of obstructive jaundice, either in size of spot or depth of green. In the acute stage of viral hepatitis, hyperemia is sometimes clearly visible.

In fatty metamorphosis the whole core is rather pale and is moderately translucent on transillumination. The specimen also appears anemic. In cirrhosis the core is also pale but is not translucent unless much fat is present. In two instances of advanced postnecrotic cirrhosis with the diagnosis of grossly nodular livers confirmed at necropsy or at operation, the specimens disintegrated in spite of careful handling; similarly, numerous specimens obtained by the biopsy needle at necropsy also disintegrated despite every precaution. Careful microscopic examination of the needle specimens obtained both from the patients and from the cadavers revealed no evidence of cirrhosis. Histological examination of large slices of liver at postmortem examinations revealed many lines of cleavage between the parenchyma and the coarse fibrous bands, and it appeared that the biopsy specimens must have fragmented at similar weak points. Thus fragmentation of the biopsy specimen despite careful handling should suggest the possibility of hepatic cirrhosis, even without histological confirmation.

Metastatic carcinoma of the liver has a dead-white appearance and is most obvious when the metastasis stands out in marked contrast in a specimen that is mainly normal. When the whole core is neoplastic it is still quite obvious, but the pallor of a cirrhotic specimen may mislead one for want of a standard; if one is in doubt, it is unlikely that the appearance is due to metastasis. On four occasions creamy pus-like fluid has been aspirated; smears revealed necrotic malignant cells.

The follicles of Boeck's sarcoid and of miliary tuberculosis are not apparent on superficial examination. However, if the specimen is transilluminated, the rounded follicles are easily detected, for they are brightly translucent and contrast sharply with the opaque normal tissue (fig. 2B). This translucency has to be looked for in the fresh specimen, as it dims gradually at room temperature and disappears immediately on fixation. Once the follicles have been localized by transillumination, they are easily detectable under direct light as well-defined pale areas. These appearances have been noted in each of the 11 cases of sarcoidosis and 2 of miliary tuberculosis in which biopsies have been done since this observation was first made. The pathologist is frequently unable to differentiate the various granulomas unless he can find caseation or tubercle bacilli. Therefore the gross demonstration of

the translucent foci, the granulomas, may be just as helpful as the microscopic examination for correlation with the clinical findings. Detection of the follicles also indicates at once that the biopsy has been successful; if these foci are not seen, the biopsy may be repeated without waiting for the histological report, especially if the clinical evidence for some granulomatous condition is strong. Finally the position of the follicles may be reported to the pathologist, thus allowing him to cut his sections in the right place.

Pallor and translucency should be carefully evaluated when present at the proximal end of the specimen, where they are often seen as a result of the suction applied during the biopsy; although they may mislead the unwary, they do not approach the white opacity of carcinoma or the clear translucency of the granulomas. The glass tubes should therefore be marked at one end with a substance such as sealing wax and the specimen should always be inserted through that end.

In hemochromatosis, the biopsy specimen is at once seen to be unusually brown in color; after the specimen has been standing in methylal-saline solution this hue intensifies, in contrast to other specimens, which are blanched by this fixative. Furthermore, the pale strands of fibrous tissue stand out against the brown color, permitting one to make an accurate forecast of cirrhosis in addition to hemochromatosis.

OBSERVATIONS

Observations During Liver Biopsy.—The duration of bleeding from the skin incision is an excellent indication of adequate hemostasis; thus the biopsy should not be performed until the incision has stopped bleeding. If the bleeding lasts longer than 10 minutes, the biopsy should be postponed for further investigation. This precaution has saved me from performing biopsies on patients with abnormal bleeding tendencies due to uremia, thrombocytopenia, and low prothrombin levels, which were incorrectly reported as normal or which fell suddenly from normal.

The resistance to the needle is increased in well-developed cirrhosis, but not in metastatic carcinoma. Patients with hepatic metastases usually experience no sensation of any kind during the biopsy; since other patients are usually aware of a vague sensation of pushing or pulling, it seems probable that the nerve supply of Glisson's capsule is often interrupted in metastatic carcinoma of the liver.

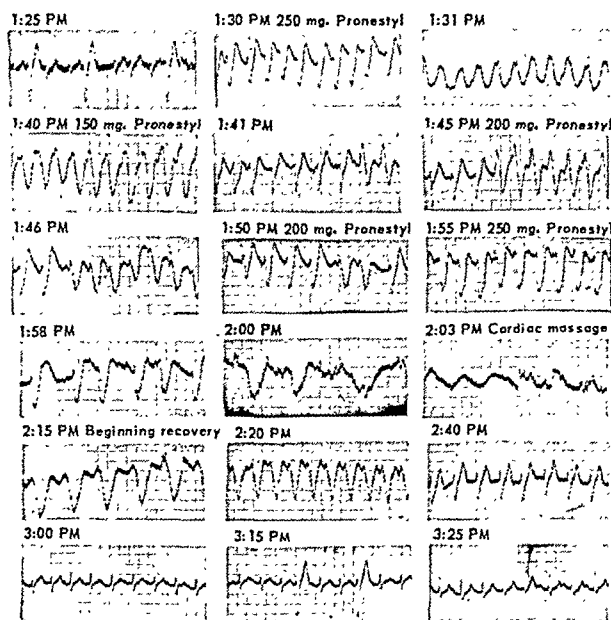
Either during infiltration with a local anesthetic or during the actual biopsy, the presence of ascites may be determined by withdrawing ascitic fluid into the syringe or, on occasion, by collecting some fluid escaping through the biopsy track. Similarly one may obtain clear fluid in cystic disease of the liver, pus from an amebic abscess, blood from a hemangioma, bile from a distended bile duct in obstructive jaundice, and hooklets from a hydatid cyst.

Application to Other Techniques.—The specimen obtained with the Vim-Silverman needle lies rather obstinately within the split inner needle, from which it is usually dislodged with some form of hook and delivered straight into the fixative. To permit naked-eye examination, the biopsy specimen should be removed with a piece of nonglossy paper, to which it readily adheres, or with a

change had occurred in the electrocardiogram or in the patient's condition and 200 mg. of procaine amide was given. Within one minute, QRS widening again appeared. By 1:50 p. m., the QRS complexes returned to their original duration and an additional 200 mg. of procaine amide was given, with subsequent widening of the QRS complexes. At 1:55 p. m., although slight QRS widening persisted, in view of the patient's lack of response, an additional 250 mg. of procaine amide was given. During the next few minutes progressive QRS widening occurred, and at 2:00 p. m. cardiac standstill supervened. The exposed heart was immediately massaged manually and epinephrine was injected into the left ventricle. At 2:15 p. m., spontaneous ventricular contractions were observed and the continuous electrocardiogram record demonstrated a reversion to normal in reverse order to the pattern of the evolution of the cardiac standstill. The patient had an uneventful recovery, and several days later a follow-up electrocardiogram revealed an entirely normal pattern.

COMMENT

Although mild and severe reactions during the intravenous administration of procaine amide have been described, to the best of our knowledge no authentic case



Electrocardiogram taken continuously during a right upper lobectomy on a 30-year-old Negro seaman, who had pulmonary tuberculosis.

of cardiac standstill after intravenous administration of this drug has been reported. It is known that during inhalation anesthesia, particularly in intrathoracic explorations, ventricular premature contractions, ventricular tachycardia, and cardiac arrest, may suddenly occur and require emergency treatment. Our patient had received a variety of drugs preoperatively, and during anesthesia, which too may have precipitated the bout of ventricular tachycardia and contributed to the cardiac arrest. In our case there was marked widening of the QRS complexes (which is known to be a side-reaction of procaine amide administration) after each dose of procaine amide, and the progressive widening of the QRS after the last dose led to complete cardiac arrest. In view of the continuous electrocardiogram tracings that were taken during the administration of the drug and revealed immediate changes after each dose, the relationship between the intravenous administration of procaine amide and cardiac arrest seems well established.

ADDENDUM

Since the preparation of this manuscript, a report by Marvin A. Epstein, in the *American Heart Journal* of June, 1953, describes the occurrence of three cases of ventricular standstill during the intravenous procaine amide treatment of ventricular tachycardia.

SURGICAL REPAIR OF INTRAVENTRICULAR SEPTAL DEFECTS

REPORT OF A CASE

Earle B. Kay, M.D.

and

Henry A. Zimmerman, M.D., Cleveland

Evidence reveals that a high proportion of patients with intraventricular septal defects must lead lives of restricted activity and that others die prematurely. Intraventricular septal defects are commonly located high in the septum and connect the left ventricular chamber immediately proximal to the aortic valve to the right ventricular chamber in the region of the median leaflet of the tricuspid valve. Defects in this region may be associated with other defects, such as pulmonic or infundibular stenosis and overriding of the aorta. Less commonly intraventricular defects may be located lower in the muscular septum. They result from failure of the lower ventricular septum growing from the apex to meet and fuse with the downward growing aortic septum.

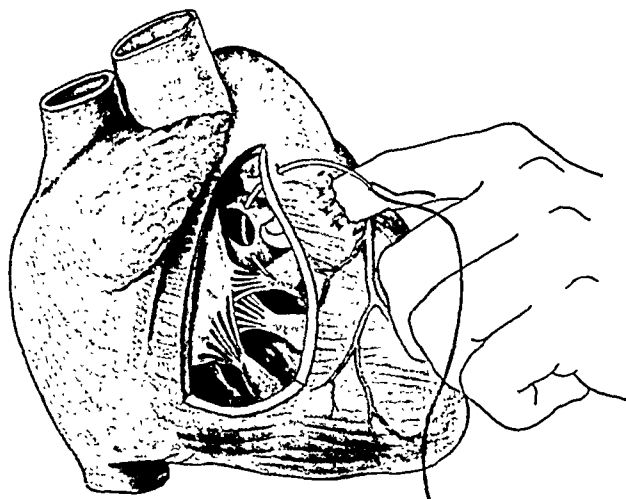
This report deals with the surgical closure of intraventricular septal defects uncomplicated by other abnormalities. The greater pressure within the left ventricle causes a left to right shunt of blood during ventricular systole, increased blood flow to the lungs, pulmonary hypertension, sclerosis of the pulmonary vessels, and cardiac hypertrophy on the right side.

Delay in the surgical treatment of intraventricular septal defects has resulted from the failure of development of an effective but simple heart-lung preparation to allow safe, open operations within the chambers of the ventricles and the danger of air emboli occurring during cardiomyotomy when refrigeration is employed. Closed methods have been employed in which the intraventricular septal defect was plugged with pericardial grafts, but such grafts have been shown to become atrophic after several months.

TECHNIQUE

The technique to be described has the advantages of being simple and safe and adaptable to the closure of the majority of septal defects. An anterolateral exposure through the left third or fourth interspace is employed. The sternochondral junction of either or both the third or fourth costal cartilage is detached from the sternum. Further exposure can be obtained by transecting the sternum or rongeur the lateral border. A purse-string suture is placed in the anterior wall of the right ventricle in the center of which an opening is made for insertion of the index finger of the left hand to explore the right ventricle, septum, and pulmonary and tricuspid valves for other defects. The size and location of the defect is determined. The jet of blood pouring into the right ventricle

can easily be palpated in the region of the median cusp of the tricuspid valve. By employing a large upholstery needle and no. 1 nonabsorbable surgical suture, the needle is inserted into the ventricular chamber in the region of the pulmonary conus as illustrated in the figure. The tip of the needle is then directed by the index finger within the ventricular chamber to engage the anterior and posterior lips of the septal defect and then through the ventricular wall at a lower level. The needle is removed, and an instrument is passed into the ventricular chamber along the index finger to catch the two ends of the suture and to bring them out of the myotomy opening. The ends are then tied and the knot pushed into the chamber; this approximates the two lips of the defect. Scissors are then inserted along the index finger, and the ends of the suture are cut. It appears that three to four sutures are required to adequately close defects that approach the size of the end of the finger. The myotomy incision is then closed by interrupted suture, and the purse-string suture is removed. The pericardium is closed loosely to allow drainage into



Diagrammatic sketch of the heart showing index finger of the left hand inserted into the right ventricle. The position and character of the septal defect is determined. A large suture ligature is passed through the ventricular wall, through the edges of the septal defect, and out through the ventricular wall.

the pleural space. This is followed by closure of the chest incision in the usual manner with drainage. Refrigeration of the patient adds to the safety of the operation.

REPORT OF A CASE

A 21-year-old white woman was admitted to St. Vincent Charity Hospital on May 20, 1953. For several weeks following birth, she had had a bluish color but otherwise had not been cyanotic. She had had known congenital heart disease since birth. Activity was always restricted because of dyspnea on ordinary exertion. She suffered from frequent respiratory infections and had pneumonia at the age of 13. There had never been any episodes of cardiac failure.

The physical examination revealed a slightly obese woman who was somewhat dyspneic but who otherwise did not appear acutely or chronically ill. The blood pressure was 105 systolic and 70 diastolic. The results of the examination, except for the heart abnormalities, were essentially normal. There was a loud systolic murmur heard over the entire precordium, but this was loudest in the third and fourth interspaces. A thrill was palpable in the same area.

Roentgenograms of the chest, including those taken after a barium swallow, and cardiac fluoroscopy revealed an enlarged right auricle and a prominent pulmonary conus. The heart

was not appreciably enlarged. An angiocardigram revealed a shunt between the right and left sides of the heart with visualization of the aorta within one second. It could not be determined whether the shunt was between the auricles or the ventricles. The aorta appeared small, and the pulmonary conus and artery appeared large. There was delayed passage of the dye through the pulmonary circulation with suggestive evidence of revascularization of the pulmonary artery. The electrocardiogram revealed a right axis deviation. Cardiac catheterization studies gave the following results. Pressure (mm. Hg) values were, in the right auricle, 5/1; in the right ventricle, 80/3; and, in the femoral artery, 118/74. Oxygen concentration (vol. %) was, in the right auricle, 14.2; in the right ventricle, 15.9; in the femoral artery, 17.92; in the superior vena cava, 13; and in the inferior vena cava, 12.5. The oxygen capacity was 18.7 vol. %. The catheter could not be placed in the pulmonary artery on numerous attempts. This is not unusual in patients who have an elevated pulmonary arterial pressure.

An operation was performed on May 27, 1953, through a left anterolateral exposure. The technique employed was similar to that already described. The woman's temperature was lowered to 84 F throughout the operative procedure. The patient withstood the operation well, but the first 48 postoperative hours were complicated by difficulty in maintaining the blood pressure and by pulmonary edema. Thereafter improvement was progressive. The patient was discharged on the 14th day. Check-up examination three months later revealed considerable improvement in the patient's dyspnea.

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CONTRACTION OF LEFT LEAF OF DIAPHRAGM COINCIDENT WITH CARDIAC SYSTOLE

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and

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The subject of this report is a patient who showed the phenomenon of contraction of the left leaf of the diaphragm synchronous with systolic movement of the heart. This is the fourth such case to be recorded in the medical literature. The presence of vigorous abdominal pulsations—in each of these four patients initially suggested a diagnosis of aneurysm of the aorta. Tetany due to alkalosis or hypocalcemia was found in each instance, and cessation of the abnormal diaphragmatic movements occurred after corrective therapy.

REPORT OF CASE

A 40-year-old white American seaman entered the hospital on the evening of Oct. 6, 1952, with complaints of epigastric pain, nausea, and vomiting of one week's duration. These symptoms had not been relieved by the ingestion of an unknown amount of "baking soda" and had been persistent for two days. He had been aware of a jerking motion of the left upper quadrant of the abdomen for about 24 hours prior to admission. He gave a history of having had yearly episodes of epigastric pain and vomiting for the previous 10 years, each attack lasting one to two days and being relieved by means of a bland diet and "baking soda." The patient had not considered his previous attacks sufficiently incapacitating to warrant medical attention.

Physical Examination.—The pulse rate was 88, respirations 16 (shallow), blood pressure 110/70 mm. Hg, and temperature 97 F orally. The patient was poorly nourished and lethargic.

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Dr. Frederic C. Bartter assisted in the operation on this case.

and he showed signs of dehydration. The most striking observation was a heaving motion of the left upper quadrant of the abdomen and the adjacent costal margin, with gurgling noises audible to the examiner. The thrusting motion was coincident with the pulse beat, and the gurgling sound apparently resulted from the movement of air and fluid in the stomach. Auscultation of both lung fields showed a high-pitched hissing sound with each thrust that was distinct from the normal breath sounds. Over the precordium this sound was invariably heard between the first and second heart sounds, resembling

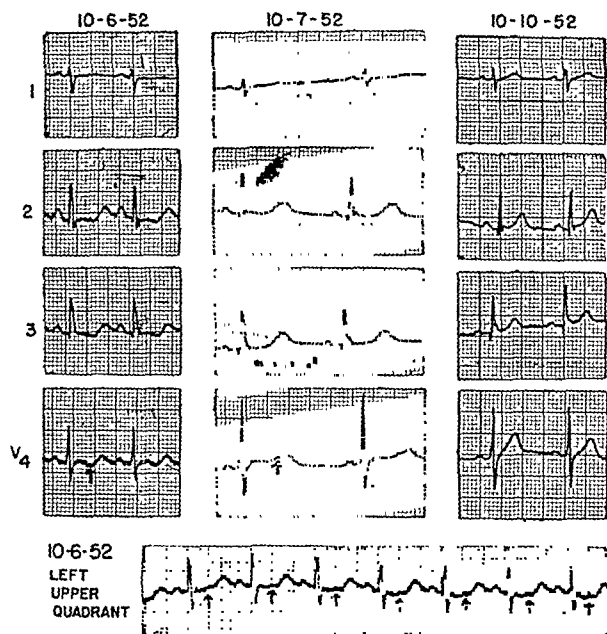


Fig. 1.—Electrocardiograms in patient reported on. On Oct. 6, 1952, the heart rate was 102 and the Q-T interval 0.44 seconds. The prolonged Q-T interval is consistent with the metabolic disturbance. Note the alteration (arrows) of repolarization forces, best seen on lead V-4 and a lead taken from the left upper quadrant of the abdomen in the midclavicular line. This deformity of repolarization forces is interpreted as representing electrical potentials associated with the abnormal diaphragmatic contractions. On Oct. 7, 1952, the heart rate was 56. The prolonged Q-T interval (0.56) persisted. The notching of the T wave on lead V-4 may reflect subthreshold diaphragmatic stimuli, since no abdominal pulsations were noted at the bedside at this time. On Oct. 10, 1952, the heart rate was 88 and the Q-T interval was 0.32. This was a normal tracing. Subsequent records showed no change.

a systolic murmur. Moderate epigastric tenderness was noted, and palpation of the pulsating left upper abdominal region changed the character of the gurgling noises. The Trousseau phenomenon was elicited. The Chvostek sign was not elicited.

Course.—On admission the patient was seen by several examiners, and the cause of the heaving motion was obscure. Aneurysm of the aorta was considered to be a possibility. On the evening of admission, fluoroscopy showed vigorous contractions of the left leaf of the diaphragm coincident with cardiac systole, the contractions being superimposed on normal diaphragmatic movement and having a greater excursion during the expiratory phase of respiration. It was not possible to prevent these contractions by changes in the position of the patient or by full inspiration or expiration. The stomach was distended with air and fluid (during the procedure the patient vomited 250 cc. of a milky-appearing liquid). Electrocardiograms were also done at this time (fig. 1). A spiographic tracing (fig. 2) was obtained by having the patient breathe into a closed-circuit respirometer. The reaction was alkaline to a test of the urine by the use of sodium dinitrophenyl-azo-naphthol disulfonate (Nitrazine). By this time it was apparent that the heaving motions were of diaphragmatic origin. The most likely diagnosis appeared to be chronic duodenal ulcer with metabolic alkalosis and latent tetany.

During the first night of hospitalization 2,000 cc. of 5% dextrose in isotonic sodium chloride solution was given intravenously. Sometime during the night the unusual movement of

the left upper quadrant of the abdomen ceased, but the patient continued to be very lethargic and was intermittently disoriented.

The following morning (Oct. 7) roentgenograms of the chest and abdomen were normal; the white blood cell count was 13,000 per cubic millimeter, with a differential count of 72% neutrophils, 18% lymphocytes, and 10% monocytes. The hemoglobin was 13.5 gm. per 100 cc. (Evelyn method) and the hematocrit 45%. The urine gave an alkaline reaction. The specific gravity was 1.019, sugar and acetone negative, and albumin 150 mg. per 100 cc. There were 10 to 15 white blood cells, with many granular and cellular casts per high power field. Serologic studies were negative. Chemical analysis of blood serum revealed sodium, 136.5 mEq. per liter; potassium, 3.12 mEq. per liter; carbon dioxide combining power, 38.2 mEq. per liter; chloride, 70.4 mEq. per liter; pH, 7.79; calcium, 8.6 mg. per 100 cc.; phosphorus, 9.6 mg. per 100 cc., total protein, 5.9 gm. per 100 cc.; and albumin-globulin ratio, 1.4. The blood urea nitrogen was 118 mg. per 100 cc. The data upheld the diagnosis of metabolic alkalosis and indicated renal insufficiency.

During the next three days intensive parenteral fluid therapy was given with solutions containing dextrose, sodium chloride, potassium chloride, and ammonium chloride. By Oct. 10, 1952, the patient's urinary output, which had been low, had returned to normal and the clinical state was much improved. Blood cell counts and blood chemical values had returned to normal except for a blood urea nitrogen level of 87 mg. per 100 cc. From Oct. 10 to Oct. 30, treatment consisted of a progressive Sippy diet and administration of an aluminum hydroxide preparation (Amphogel) and antispasmodics. By Oct. 20 the blood

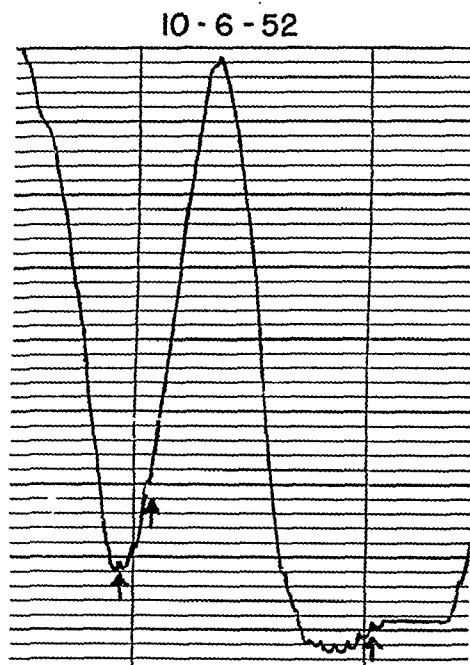


Fig. 2.—Spirogram in patient reported on, taken Oct. 6, 1952. Small upright waves (arrows) represent inspiratory effect of left diaphragmatic contractions. These waves are seen best on maximal expiration. Rate of the diaphragmatic "flutter" measured from the spiographic tracing is about 90 per minute.

urea nitrogen level had fallen to 20 mg. per 100 cc. and urinalysis results were normal. The patient gained 7 lb. (3.2 kg.) in weight, and the night gastric retention, which had been 1,150 cc. on Oct. 10, had decreased to 200 cc. by Oct. 28. Roentgenograms of the upper gastrointestinal tract were interpreted as giving evidence of pyloric obstruction and deformity of the duodenal bulb consistent with chronic duodenal ulcer, although no ulcer crater could be visualized. Gastric analysis after administration of histamine revealed abundant free acid.

A subtotal gastrectomy was performed on Oct. 31, 1952, and the patient made an uneventful postoperative recovery. Examination of the surgical specimen confirmed the diagnosis

of chronic duodenal ulcer. The patient was discharged from the hospital on Nov. 25, fit for light duty. A follow-up visit on Jan. 8, 1953, indicated continued good health with no recurrence of symptoms.

COMMENT

The phenomenon presented in this report has been described in the literature on three previous occasions. The first report was made in 1932 by Karelitz,¹ who described marked pulsation of the left upper quadrant of the abdomen synchronous with the heart beat in a 9-month-old child with rickets and infantile tetany. The possibility of abdominal aneurysm was considered, but fluoroscopy showed that the underlying disturbance was downward movement of the left leaf of the diaphragm. The pulsations disappeared after antirachitic therapy. In 1944, Widström² briefly discussed a 37-year-old woman with a probable "gastric" tetany in whom movement of the left upper quadrant of the abdomen and a "splashing" sound from the stomach occurred synchronously with the pulse beat. Again, clonic contractions of the left leaf of the diaphragm were noted at fluoroscopy. No follow-up was reported. Söderström,³ in 1945, reported the phenomenon in a 24-year-old man with alkalosis and tetany due to vomiting on the basis of pyloric obstruction, secondary to congenital anomalies of the abdominal viscera. Violent pulsations of the abdomen and "splashing" sounds from the stomach simultaneous with the heart beat were at first thought to be due to an enormous dissecting aneurysm. Fluoroscopy later revealed the cause of the disorder to be powerful left diaphragmatic contractions. The abdominal pulsations gradually decreased in strength and finally disappeared, only to recur after fresh periods of vomiting. On several occasions weak contractions of the diaphragm were observed at fluoroscopy when no abdominal pulsations were distinguishable clinically. The patient became symptom free after a resection of the stomach. There is an obvious similarity between these three cases and the one presented in this report. All were diagnostic problems. Whereas all had tetany, this was attributable to hypocalcemia in one and to alkalosis in the others.

Electrocardiograms taken by Söderström³ showed deformation of the ST and T waves on lead V-4 that were thought to be a manifestation of the diaphragmatic contraction set in motion by the heart. Similar but less marked changes were noted when diaphragm contractions were almost indistinguishable clinically but could still be observed on the fluorescent screen. The changes disappeared when the diaphragm contractions ceased. In 1950, Söderström⁴ reported two additional instances of high frequency diaphragmatic activity that was thought to register on the electrocardiogram; this produced a pattern quite distinct from that in his earlier report and in our case. The electrocardiogram (fig. 1) on our patient on Oct. 6, 1952, showed prolongation of electrical systole and depression of repolarization forces (ST-T) consistent with alkalosis and hypokalemia. In addition there was a deformation (note arrows) of repolarization forces that presumably coincided with the diaphragmatic contractions. By Oct. 7, 1952, the heaving motion of the abdomen was no longer evident clinically. However, there was a suggestion of continued electrical activity contributed by the diaphragm appearing as an

upward displacement of the ascending limb of the T wave in lead V-4. The spirographic tracing (fig. 2) is the first such recording to be reported on a patient with this disorder. Small inspiratory excursions (note arrows) representing independent activity of the left leaf of the diaphragm were easily recorded during maximal expiration.

What is the mechanism in these persons leading to contraction of the left leaf of the diaphragm with each heart beat? Karelitz¹ offered no explanation. Widström² postulated either a direct mechanical irritation of the diaphragm by the heart muscle or a visceromotor reflex with efferent mediation via the phrenic nerve. Söderström³ ascribed the phenomenon to stimulation of the left phrenic nerve during systole, provoked either mechanically or electrically ("through the heart's own action currents"). Of interest in this regard is a report by Carlson and Jacobson⁵ in 1911 directing attention to the frequent occurrence of diaphragmatic contractions synchronous with the heart beat in dogs with severe parathyroid tetany. The contractions were attributed to increased excitability of motor nerves in this condition and were thought to confirm an early observation by Schiff of stimulation of the phrenic nerves by the "action current of the heart." It is clear that the abnormal diaphragmatic stimulation in these various situations is dependent on the increased neuromuscular excitability that exists in the presence of alkalosis and hypocalcemia. Less certain is the manner in which the abnormal impulse is generated. Direct mechanical or electrical stimulation of the diaphragm seems unlikely, since shifts in the relative position of heart and diaphragm in our patient did not prevent the diaphragm from responding with every heart beat. Reflex discharges of cardiac or vascular origin with efferent path via the phrenic nerve probably cannot be ruled out; however, the absence of any case report in which the right leaf of the diaphragm contracted with the heart beat makes this mechanism also appear unlikely. The occurrence of the diaphragmatic stimulation at a time when ventricular volume is decreasing argues against a mechanical stimulation of the left phrenic nerve. The most reasonable hypothesis seems to be that the left phrenic nerve is stimulated by the heart's own action currents. In the human only the left phrenic nerve lies closely adjacent to ventricular myocardium.

SUMMARY

Clonic contractions of the left leaf of the diaphragm synchronous with the heart beat are reported in a 40-year-old man with alkalosis and latent tetany. Three similar cases are cited from the literature. It is postulated that, in the presence of the increased neuromuscular excitability of tetany, electrical stimulation of the left phrenic nerve by the heart's action currents may produce contractions of the left leaf of the diaphragm.

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MACROSCOPIC DIAGNOSIS IN LIVER BIOPSY

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Although the macroscopic features of the specimens obtained by needle biopsy of the liver are often informative and helpful in diagnosis, they have been disregarded largely because the specimens obtained by the usual techniques are unsuitable for naked-eye examination. This report deals (a) with a method of obtaining, by biopsy, specimens of the liver of adequate size and in suitable condition for macroscopic examination and (b) with the gross appearance of such specimens in various disorders.

The Vim-Silverman needle,¹ which is generally preferred in America, is simple to use. However, the specimen is taken by a split inner needle with a bore of less than 1 mm. that projects only 2 cm. beyond the bevel of the outer needle. The specimen is therefore small, with a maximum volume of about 12.5 cu. mm. It is difficult to prepare for naked-eye examination since it is held inside the split needle, and its gross appearance is distorted by the squeeze of the split needle.

The Iversen-Roholm needle,² more popular in Europe, has a bore of 1.6 to 2 mm. and can be inserted into the liver to any desired depth to obtain specimens of 60 to 90 cu. mm. However, the specimen is usually aspirated into the syringe where it often breaks up and is difficult to handle; while a larger specimen is available for histological examination than with the Vim-Silverman technique, it is no more suitable for naked-eye inspection. The same applies to the Franseen³ needle. The disadvantages of the Iversen-Roholm method may be overcome without losing its advantages by combining the syringe, trocar, and needle into one instrument with suitable modifications; this instrument,⁴ hereafter referred to as the combined instrument, gives large intact specimens that are easily handled and readily examined by the naked eye.

METHOD

The Combined Instrument and Its Use.—The instrument (fig. 1) consists basically of a syringe carrying a biopsy needle on the barrel and a trocar on the plunger. A spring catch on the cap of the syringe engages with the notched piston rod and permits negative pressure to be maintained when the plunger is retracted. In taking the biopsy specimen, the left hand grips the piston handle keeping the plunger, and thus the trocar, stationary, while the right hand thrusts the barrel forward, thus introducing the needle into the liver. In this single movement, the specimen is cut out by the needle, the trocar is removed

from the distal end of the needle, negative pressure is produced within the syringe, and the plunger is locked in its retracted position maintaining suction on the biopsy specimen without further attention from the operator. After rotation of the needle to and fro to loosen the base of the core, the needle is withdrawn.

Manipulation of Biopsy Specimen.—The core of liver is placed in a glass tube, 5 cm. long with a 4 mm. bore, where it can be freely handled without damage and its gross appearance studied with both the naked eye and a



Fig. 1.—The combined liver biopsy instrument.

hand lens. The glass tube magnifies the core somewhat and permits transillumination; it also keeps the core straight and intact, facilitating histological preparation.

To introduce the specimen into the glass tube, the needle is unscrewed from the syringe and a blunt trocar of appropriate size inserted into the needle until the specimen just appears at the bevel; the point of the needle is then placed well inside the glass tube, and the specimen is gently deposited in the tube by retracting the needle with the trocar held still. Any blood on the specimen is immediately washed away and aspirated from the glass tube; the syringe and procaine already employed for local anesthesia may be used for this purpose. The specimen must be examined without delay and before it is placed in fixative, which would make it appear homogenous.

GROSS APPEARANCE

Macroscopic Diagnosis.—The specimen of normal liver has a milk chocolate hue, which varies in depth with the concentration of glycogen and which on closer inspection is seen to be slightly mottled, the darker areas



Fig. 2.—A, speckled biopsy specimen showing obstructive jaundice; B, transilluminated biopsy specimen showing translucent follicles of Boeck's sarcoid.

corresponding to the central zones. The specimen is opaque to transillumination, and no vascularity is visible within the tissue.

In obstructive jaundice, the specimen has a speckled appearance (fig. 2A); against a background paler than normal, the central zones appear as dark green irregular spots up to 1 mm. in diameter. This picture has been noted in each of 27 specimens from patients with obstructive jaundice. If in a patient with jaundice this characteristic picture is absent, the jaundice is probably not

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This study was supported by a grant from the Dr. Jerome D. Solomon Memorial Research Foundation.

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due to obstruction. This green speckling is, however, not pathognomonic of extrahepatic obstruction, since it is occasionally observed in hepatitis with marked biliary stasis, especially the cholangiolitic type. It is not only the macroscopic appearance that is deceptive, for it is in these very cases that the histological picture often fails to differentiate between parenchymal and obstructive jaundice. The green speckling is not destroyed by fixation, but is rather accentuated since the fixative bleaches the rest of the lobule.

In viral and toxic hepatitis and in jaundice complicating cirrhosis, the specimen is pale and uniformly icteric, without any green speckling. If some speckling is present, it is usually slight and, apart from cholangiolitic hepatitis, never approaches the speckling of obstructive jaundice, either in size of spot or depth of green. In the acute stage of viral hepatitis, hyperemia is sometimes clearly visible.

In fatty metamorphosis the whole core is rather pale and is moderately translucent on transillumination. The specimen also appears anemic. In cirrhosis the core is also pale but is not translucent unless much fat is present. In two instances of advanced postnecrotic cirrhosis with the diagnosis of grossly nodular livers confirmed at necropsy or at operation, the specimens disintegrated in spite of careful handling; similarly, numerous specimens obtained by the biopsy needle at necropsy also disintegrated despite every precaution. Careful microscopic examination of the needle specimens obtained both from the patients and from the cadavers revealed no evidence of cirrhosis. Histological examination of large slices of liver at postmortem examinations revealed many lines of cleavage between the parenchyma and the coarse fibrous bands, and it appeared that the biopsy specimens must have fragmented at similar weak points. Thus fragmentation of the biopsy specimen despite careful handling should suggest the possibility of hepatic cirrhosis, even without histological confirmation.

Metastatic carcinoma of the liver has a dead-white appearance and is most obvious when the metastasis stands out in marked contrast in a specimen that is mainly normal. When the whole core is neoplastic it is still quite obvious, but the pallor of a cirrhotic specimen may mislead one for want of a standard; if one is in doubt, it is unlikely that the appearance is due to metastasis. On four occasions creamy pus-like fluid has been aspirated; smears revealed necrotic malignant cells.

The follicles of Boeck's sarcoid and of miliary tuberculosis are not apparent on superficial examination. However, if the specimen is transilluminated, the rounded follicles are easily detected, for they are brightly translucent and contrast sharply with the opaque normal tissue (fig. 2B). This translucency has to be looked for in the fresh specimen, as it dims gradually at room temperature and disappears immediately on fixation. Once the follicles have been localized by transillumination, they are easily detectable under direct light as well-defined pale areas. These appearances have been noted in each of the 11 cases of sarcoidosis and 2 of miliary tuberculosis in which biopsies have been done since this observation was first made. The pathologist is frequently unable to differentiate the various granulomas unless he can find caseation or tubercle bacilli. Therefore the gross demonstration of

the translucent foci, the granulomas, may be just as helpful as the microscopic examination for correlation with the clinical findings. Detection of the follicles also indicates at once that the biopsy has been successful; if these foci are not seen, the biopsy may be repeated without waiting for the histological report, especially if the clinical evidence for some granulomatous condition is strong. Finally the position of the follicles may be reported to the pathologist, thus allowing him to cut his sections in the right place.

Pallor and translucency should be carefully evaluated when present at the proximal end of the specimen, where they are often seen as a result of the suction applied during the biopsy; although they may mislead the unwary, they do not approach the white opacity of carcinoma or the clear translucency of the granulomas. The glass tubes should therefore be marked at one end with a substance such as sealing wax and the specimen should always be inserted through that end.

In hemochromatosis, the biopsy specimen is at once seen to be unusually brown in color; after the specimen has been standing in methylal-saline solution this hue intensifies, in contrast to other specimens, which are blanched by this fixative. Furthermore, the pale strands of fibrous tissue stand out against the brown color, permitting one to make an accurate forecast of cirrhosis in addition to hemochromatosis.

OBSERVATIONS

Observations During Liver Biopsy.—The duration of bleeding from the skin incision is an excellent indication of adequate hemostasis; thus the biopsy should not be performed until the incision has stopped bleeding. If the bleeding lasts longer than 10 minutes, the biopsy should be postponed for further investigation. This precaution has saved me from performing biopsies on patients with abnormal bleeding tendencies due to uremia, thrombocytopenia, and low prothrombin levels, which were incorrectly reported as normal or which fell suddenly from normal.

The resistance to the needle is increased in well-developed cirrhosis, but not in metastatic carcinoma. Patients with hepatic metastases usually experience no sensation of any kind during the biopsy; since other patients are usually aware of a vague sensation of pushing or pulling, it seems probable that the nerve supply of Glisson's capsule is often interrupted in metastatic carcinoma of the liver.

Either during infiltration with a local anesthetic or during the actual biopsy, the presence of ascites may be determined by withdrawing ascitic fluid into the syringe or, on occasion, by collecting some fluid escaping through the biopsy track. Similarly one may obtain clear fluid in cystic disease of the liver, pus from an amebic abscess, blood from a hemangioma, bile from a distended bile duct in obstructive jaundice, and hooklets from a hydatid cyst.

Application to Other Techniques.—The specimen obtained with the Vim-Silverman needle lies rather obstinately within the split inner needle, from which it is usually dislodged with some form of hook and delivered straight into the fixative. To permit naked-eye examination, the biopsy specimen should be removed with a piece of nonglossy paper, to which it readily adheres, or with a

coverslip, which facilitates transillumination. With the Iversen-Roholm, Franseen, and similar aspiration biopsy techniques, the specimen is usually sucked into the syringe. If the syringe is partly filled with saline solution before suction is applied, the specimen is less likely to be damaged and is more easily handled and inspected.

COMMENT

While it is clearly advantageous to be able to determine at the bedside whether a liver biopsy specimen is abnormal and what the abnormality is, it is doubtful whether this advantage alone would recommend the combined instrument in preference to either the Vim-Silverman or the Iversen-Roholm technique. It is therefore emphasized that the combined instrument has other advantages, including simplicity and rapidity of action.

The mortality rate does not preclude larger biopsy specimens, for the rate is about 0.12% with either the Vim-Silverman or the other techniques.⁵ It is probable that in the Vim-Silverman technique the size of the outer needle is more important than the small size of the biopsy specimen in the production of complications and that the double action of the two needles damages the liver more than the single needle of other methods. Using the combined instrument with needles of 2.1, 1.8, and 1.65 mm. internal diameter, I have performed over 300 biopsies without hemorrhage or death and with but one major complication, which was biliary peritonitis in a patient with intrahepatic biliary obstruction.

SUMMARY

A method of obtaining liver biopsy specimens of adequate size and suitable condition for naked-eye examination is reported. The characteristic macroscopic appearances are described; such conditions as parenchymal jaundice, obstructive jaundice, metastatic carcinoma, and granulomas, including tuberculosis and Boeck's sarcoid, may be readily recognized at the bedside.

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DEFORMITY OF THE XIPHOID CARTILAGE ASSOCIATED WITH GASTRO-INTESTINAL SYMPTOMS

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Scant attention has been paid to lesions and abnormalities of the xiphoid cartilage causing gastrointestinal symptoms. This is probably so because the xiphoid is seldom injured, and congenital or developmental abnormalities are seldom noted or looked for. The xiphoid process, the inferior portion of the sternum, juts down into the anterior abdominal wall in front of the liver and can be palpated in the floor of the depression known as the epigastric fossa, or the "pit of the stomach." The process

is usually flat and pointed but may be almost any shape. It consists of cartilage with a core of bone that enlarges with age. Trauma to the xiphoid is observed infrequently since the cartilage is sheltered in the subcostal angle and is usually more posterior than the body of the sternum; however, it may be contused or broken by a force applied against the anterior wall of the chest.

The epigastric syndrome¹ is the term used to refer to epigastric pain localized in the xiphoid region, arising from a malformed but unbroken xiphoid process. The xiphoid is tender on palpation. The patient complains of heaviness in the pit of the stomach. Nausea and vomiting are noted only when the xiphoid is bent back, and there may be pain on deep breathing. Certain actions, such as eating, applying pressure over the xiphoid, and sitting up, increase the discomfort. Lying in the supine position is stated to lessen the pain. We have encountered a case of tack hammer deformity of the xiphoid associated with gastrointestinal symptoms. This is the second such case reported in the literature as far as we have been able to determine.



Roentgenogram of surgically removed xiphoid cartilage of the patient in case reported on, showing tack hammer deformity.

REPORT OF A CASE

A 46-year-old white man was admitted to St. Luke's Hospital on May 12, 1952, complaining of epigastric tenderness of three weeks' duration. There was a history of slight trauma to the xiphoid process when the patient was struck by a baseball as a child. In 1937, the patient had had gnawing, crampy, epigastric pain, and he was put on an ulcer regimen, which did not relieve the symptoms. The pain continued intermittently, occasionally relieved by medication. There was a constant bitter taste in the mouth and frequent gaseous bloating and substernal burning following ingestion of food. There was occasional nausea accompanying the substernal burning, with relief afforded by belching or vomiting. There was no intolerance to fatty food. There was no relief by epigastric massage. When the patient was reclining, his symptoms were eased by lying on the left side. There was no pain related to respiration. Despite symptoms, the patient's appetite remained good, and there was no weight loss. For three weeks before admission, the patient noted exquisite pain in the epigastrium overlying the xiphoid process when pressure was exerted in this area.

Examination revealed a subcutaneous anterior protrusion of the xiphoid with a fishtail deformity of the inferior aspect of the cartilage. The larger prong of the xiphoid was on the right. Movement of the xiphoid reproduced the exquisite pain of which the patient complained. There was mild tenderness to deep palpations in the right upper quadrant of the abdomen and in the epigastrium.

[†] Dr. Hanlon died on Oct. 18, 1953.

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Laboratory studies, including a complete blood cell count, urinalysis, and serologic studies, were all normal. Unfortunately, lateral and oblique roentgenograms were not secured before operation. Excision of the xiphoid was performed. A lateral transverse incision was made over the xiphoid process and extended down to the bone. The muscular and fascial attachments of the process were excised subperiosteally, exposing a tack hammer type of xiphoid (see figure). The deformed cartilage was then excised at its articulating surface with the sternum. Closure was routine, wire being used in the skin. The xiphoid measured 5 by 2 by 0.5 cm., with the right lower prong 1.9 by 1.6 cm. and a left prong of 0.3 by 1 cm.

The patient was discharged from the hospital on the third postoperative day. Wound healing was by primary intention. One year after the operation, the patient reported no recurrence of symptoms and considered himself cured.

EPITHELIOMA AND FIBROSARCOMA OF THE PENIS OCCURRING SIMULTANEOUSLY

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and

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The simultaneous combination of fibrosarcoma and epithelial carcinoma in the same penile lesion has not been reported previously. Because of this the following case history is of interest.

REPORT OF A CASE

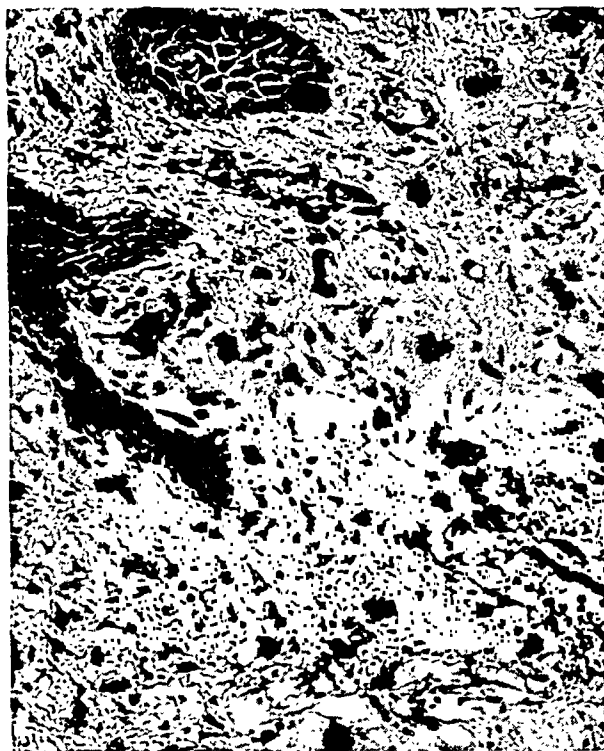
A 70-year-old white man was admitted to the Presbyterian Hospital on May 17, 1951, with the complaints of a swelling of the glans penis, which he had noticed two weeks earlier, and hemorrhage on two occasions from beneath the prepuce. For the past 30 years, the patient could not retract the prepuce.

The patient was moderately obese and did not appear ill. Examination of the external genitalia revealed a stony hard mass 2 cm. in diameter on the left dorsal aspect of the glans penis beneath the prepuce. A dark brown serous secretion oozed from beneath the prepuce. There were no palpable inguinal lymph nodes. The testes were slightly atrophic. The prostate was normal per rectum. The remainder of the physical examination was normal. On admission the patient's hemoglobin was 13.5 gm. per 100 cc., the red blood cell count 4,480,000, and the white blood cell count 5,500. Examination of the urine revealed 3 red blood cells and 10 white blood cells per cubic millimeter. Culture of the urine revealed no growth.

On May 22, 1951, with the patient under general anesthesia, a dorsal slit was performed, and a well-circumscribed tumor about 2 cm. in diameter was exposed on the left dorsal aspect of the glans penis. A frozen section biopsy revealed a squamous

cell carcinoma. Partial amputation of the penis was carried out. The postoperative course was uneventful, and the patient was discharged from the hospital 21 days after the operation.

The microscopic examination revealed a well-differentiated squamous cell carcinoma arising from an ulcerating epidermis. There were frequent whorling and pearl formation. Scattered through the underlying stroma were numerous tumor giant cells originating from the stromal cells. Transition between the proliferating fibroblasts and the bizarre giant sarcoma cells was observed. The giant cells contained single and multiple nuclei that were highly irregular in shape and staining qualities (see figure). The diagnosis was (1) mixed malignant neoplasm of the penis, (2) squamous cell carcinoma of the penis, and (3) fibrosarcoma of the penis. The patient was followed for 27 months and was completely well. There was no evidence of local or distant metastases.



Photomicrograph showing bizarre giant sarcoma cells and proliferating fibroblasts (X 950).

COMMENT

Of the 12 cases of fibrosarcoma of the penis reviewed in the literature, two were associated epithelial carcinoma.¹ Wheelock and Clark² reported both neoplasms in a patient but in separate penile lesions. Warren and Sommer^{1b} found a fibrosarcoma in the stroma of an epithelioma of the penis after five and one-half years of unsuccessful treatment of the carcinoma.

The metastatic pattern of the fibrosarcoma is of importance in delineating the desirable operative procedure. Metastases disseminate primarily by the blood stream and are generally believed to occur late in the disease. The lungs are commonly involved in metastases, and the regional lymph nodes are not usually affected.³ In these lesions, without local lymph node metastases, partial penile amputation is the procedure of choice.

122 S. Michigan Ave. (3) (Dr. Heckel).

From the Department of Urology, Presbyterian Hospital, and the University of Illinois College of Medicine.

1. (a) Wattenberg, C. A.: Primary Fibrosarcoma of Penis: Review of Literature and Report of Case, *J. Urol.* 51: 543-547 (May) 1944. (b) Warren, S., and Sommer, G. N. J., Jr.: Fibrosarcoma of Soft Parts, with Special Reference to Recurrence and Metastasis, *Arch. Surg.* 33: 425-450 (Sept.) 1936. (c) Leveuf, J.: Soc. de Med. de Paris Seance 2: 209, 1944-1945. (d) Hidal, M. T., and Sadi, A.: Tumores do pênis: Considerações a propósito de um caso de sarcoma fibroblástico, *Rev. Paulista Med.* 36: 101-110 (Feb.) 1950. (e) Fuentes Ferrer, J. J.: *Arch. Hosp. Univ. García, Habana* 2: 335-340 (May-June) 1950.

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DIFFICULTIES IN EARLY DIAGNOSIS OF MYOSITIS OSSIFICANS

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and

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Myositis ossificans is a benign condition in which there is degeneration of muscle and connective tissue, followed by replacement of these structures with a cellular fibrous tissue that eventually becomes ossified.¹ The usual case of myositis ossificans circumscripta has a definite history of injury to the involved part, followed by pain and swelling in that area. Finally, after several weeks, the typical cloud-like formation of calcified tissue is seen in the muscle mass adjacent to the bone.² Ordinarily there is little difficulty in diagnosing this condition. In the atypical case, however, the diagnosis may become difficult. This case was such a problem. Because of this patient's unusual history and symptoms and because of the problems involved in the differential diagnosis, we feel justified in reporting this case.

REPORT OF A CASE

An 8-year-old boy was brought to our office March 10, 1951, for routine orthopedic examination. He was under treatment for flatfoot and came to be fitted for a corrective shoe. His mother stated that for the past few days he had had some pain in his left thigh and that he limped. Examination showed nothing in the left hip, knee, or foot to account for the symptoms. The patient was advised to rest. On reexamination four days later, there was pain, swelling, and tenderness over the anterior aspect of the left thigh. A roentgenogram showed soft tissue swelling and a faint periosteal elevation of the middle third of the femoral shaft. The child was hospitalized at once for diagnosis and treatment. At this time the patient and his family were asked whether any kind of trauma had occurred. They could not remember any specific injury. Although no history of trauma could be obtained from the patient or his family, the mother stated that on March 3 or 4 the family had been in the country. During this holiday the patient had climbed hills and had gone tobogganing, but he denied injuring himself. Shortly after their return home, he began to complain of pain in his left thigh. The pain was described as an ache aggravated by movement, causing him to limp. The history was noncontributory. The child had had measles, rubella, mumps, and chickenpox. He had had no recent upper respiratory infection but had an allergy to dust for which he was taking 25 mg. of tripeleminamine (Pyribenzamine) hydrochloride twice daily.

Physical examination on March 14, 1951, the day of admission to the hospital, showed a young boy ambulatory but limping because of pain. The left leg was held in external rotation at the hip and in flexion at the knee. Motions to straighten the leg were possible but painful. There was moderate fusiform swelling of the anterior aspect of the left thigh, with diffuse tenderness throughout this area. There was no evidence of cellulitis, nor was there any lymphadenopathy in the groin. His temperature on admission was 101.4 F. Physical examination otherwise showed nothing significant. The patient was given penicillin by injection and placed on a regimen of bed rest.

The patient's hemogram showed a hemoglobin level of 11.8 gm. per 100 cc., or 76% (photoelectric colorimeter, with 15.6 gm. per 100 cc. as 100%); a red blood cell count of 3,810,000 per cubic millimeter; a white blood cell count of 8,350 with a differential count of 47% segmented neutrophils, 39% leukocytes, 3% band cells, 4% lymphocytes, and 6% monocytes. The serum calcium level was 11.1 mg. per 100 cc., and the serum phosphorus level was 5.9 mg. per 100 cc. The serum alkaline phosphatase was 9.2 units, the normal value being between 3 and 15 units. The total serum proteins were 7.1 gm., with the albumin 4.6 gm.

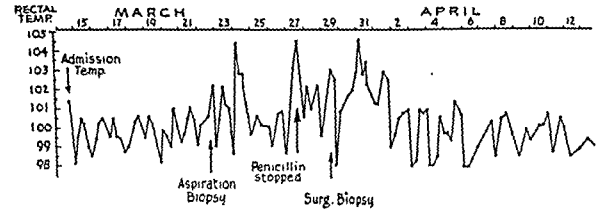


Fig. 1.—Temperature chart of patient in case reported on from time of admission until discharge from hospital.

and globulin 2.5 gm. Agglutination tests for typhoid, paratyphoid, and dysentery organisms were negative. The Kahn test was negative, and the urine was normal. The chest film was normal, and the patch test was negative for tuberculosis. Follow-up white blood cell counts with their differential cell counts were also within normal limits. The temperature graph was that of a septic process (fig. 1).

On March 20, 1951, six days after the patient's admission and about two weeks after the apparent onset of the symptoms, the swelling of the thigh had increased considerably. Induration was present, and the veins of the skin were enlarged and prominent. These observations plus the roentgenogram showing periosteal reaction in the face of a normal white blood cell count caused us to consider bone sarcoma as a possible diagnosis. Since there was some question as to the exact diagnosis, however, other opinions were obtained. These impressions were divided between bone tumor and infection (fig. 2A).

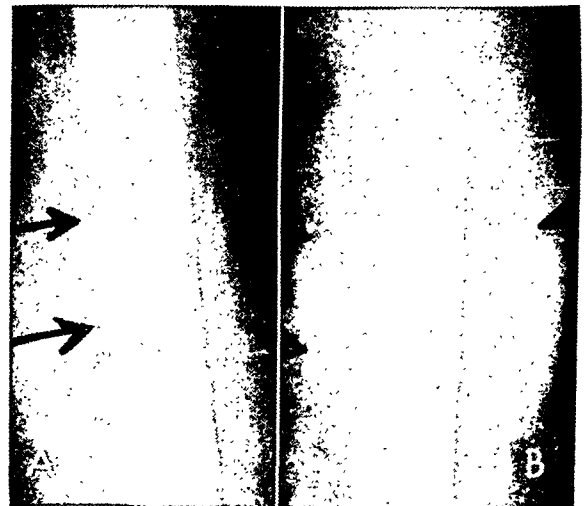


Fig. 2.—Roentgenograms of patient in case reported on. A, on a film taken March 21, 1951, definite periosteal reaction is visible. B, on a film taken April 6 the typical cloud-like formation of ossifying tissue around the femoral shaft is seen.

An aspiration biopsy was done. Fluid withdrawn from the knee was clear and sterile on culture. From the area of maximum tenderness, flecks of clotted blood and amorphous material were obtained. From this material a nonhemolytic Staphylococcus culture was obtained. The Staphylococcus later proved to be a contaminant. After the biopsy the temperature rose several degrees, with peaks of 104 F. The leukocyte count was still within normal limits. Penicillin therapy was stopped.

On March 28, 1951, because of the continuing process and because no definite diagnosis had been made, a surgical biopsy

From the Orthopedic Department, Michael Reese Hospital.

1. Geschickter, C. F., and Copeland, M. M.: Tumors of Bone, ed. 3, Philadelphia, J. B. Lippincott Company, 1949.

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was done by an anterior approach. As soon as the skin was incised, generalized edema of the subcutaneous tissue was seen. When the deep fascia of the thigh was opened, gray-pink necrotic muscle tissue was seen. This was friable and could be dislodged in clumps with the fingers. The periosteum was greatly thickened, and there was increased vascularity between the periosteum and the femur shaft. In fact, the cortical portion of the femur shaft was so porous that it resembled cancellous bone. After seeing the gross tissue and examining a frozen section, the pathologist stated that this lesion was consistent with a sarcoma and advised radical treatment. This would have been either disarticulation of the hip or a very high thigh amputation, since the whole anterior section of the quadriceps and middle third of the femur shaft were involved. We decided to wait for more detailed study of the pathological sections before proceeding with destructive surgery.

After thorough study of the paraffin sections, the pathologist diagnosed this lesion as the pseudosarcoma stage of myositis ossificans. This was corroborated by others specializing in bone pathology. When the next roentgenogram was made, on April 6, 1951, the diagnosis was very apparent roentgenologically (fig. 2B). The typical cloud of well-demarcated ossific material was seen in the muscle mass of the thigh surrounding the femur shaft, the characteristic x-ray appearance of myositis ossificans. Several months later, the roentgenogram showed a definite mass of bone in the quadriceps muscle (fig. 3).



Fig. 3.—Roentgenogram taken in September, 1951, showing definite mass of bone in the quadriceps muscle.

COMMENT

There are several features that prompted reporting this case. The history given by the patient and his family excluded definite knowledge of injury, the one outstanding etiological agent in myositis ossificans circumscripta. Without a history of definite trauma, a rapidly growing bone tumor seemed to be the most possible diagnosis. The age of the patient also was misleading.³ In the literature reviewed by us, no case of myositis ossificans of the quadriceps was recorded in so young a person. Most cases of myositis ossificans of the quadriceps occurred in the second and third decades.

The early roentgenograms did not help in the diagnosis, for they merely showed a single line of periosteal reaction (fig. 2A). This observation can be very misleading. It has been our experience that such a picture indicates only a periosteal irritation, and almost any neoplastic, traumatic, or inflammatory process in the incipient stage can show these periosteal changes.

The course of the fever was another confusing symptom. Fevers of varying degree are expected with bone tumors, especially with Ewing's sarcoma or osteomyelitis; however, it is not generally known that a febrile course can be seen in myositis ossificans. This sign is explained by the fact that necrotic muscle tissue typical of this lesion is being absorbed and causes a foreign protein thermal reaction. Howard,⁴ in his report of five cases of myositis ossificans circumscripta in young men in pre-flight training, noted that each patient ran a fever. We should like to reemphasize that the persistent fever caused us to consider osteomyelitis or Ewing's sarcoma in the differential diagnosis.

Surgical biopsy was the most important diagnostic procedure.⁵ We dismiss needle biopsy as useless and misleading. Frozen sections also may be deceiving and hazardous, because osseous tissue cannot be made into good microscopic sections by this technique. Accurate diagnosis requires material that can be examined morphologically and cytologically in order to differentiate neoplastic from inflammatory tissue.

A number of years ago, this patient's leg might have been amputated at once. It was felt then that biopsy of a neoplastic lesion was hazardous because the procedure stirred up the process and spread the tumor. This concept, fortunately, is no longer held by most workers.

Bone lesions are so often equivocal that, when radical treatment is contemplated, a number of opinions must be obtained. In reviewing cases of the Bone Tumor Registry at the American College of Surgeons, Rossiter⁶ found three instances among about 700 cases in which apparently clinically proved osteogenic sarcoma was proved to be myositis ossificans on pathological examination.⁷ Two of the three patients had amputation. The cases were considered to be five year cures by the submitting physicians. In our judgment, waiting for an accurate diagnosis will not mean the difference between cure and death in true osteogenic sarcoma. The patient should always be given the benefit of all diagnostic procedures before being given radical treatment.

SUMMARY

In a case of myositis ossificans the usual causal factor of definite trauma was lacking. The patient was much younger than is usual in cases of myositis ossificans circumscripta involving the quadriceps muscle. A febrile course is probably a usual observation in the acute phase of myositis ossificans. Surgical biopsy is the most important diagnostic procedure, but it must be interpreted by experts in the field. Amputation to treat a bone tumor should never be done until permanent, good tissue sec-

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7. Chambers, T. R.: Myositis Ossificans: Study of Another Unusual Case, *Arch. Surg.* 16: 755 (March) 1928. Pack, G. T., and Braund, R. R.: Development of Sarcoma in Myositis Ossificans, *J. A. M. A.* 119: 776 (July 4) 1942.

tions have been examined by competent pathologists. We believe that some of the five year cures reported in osteogenic sarcoma cases may be merely five year survivals of the misdiagnosed pseudosarcoma stage of myositis ossificans.

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INVERTED APPENDICAL STUMP SIMULATING CANCER OF THE CECUM

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and

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Roentgenographic diagnosis of abnormality in the cecum can often be misleading. It is not always possible to differentiate neoplastic changes from benign conditions that distort the cecum, even with air contrast studies. The commonest conditions causing difficulty in roentgenographic differential diagnosis in the cecal region are fecal scybala, distortion secondary to an appendical abscess, regional ileitis, tuberculosis, cecal diverticulitis,¹ amebic involvement of the cecum, ulcerative colitis, adhesions following an appendectomy, and an inverted appendical stump. The case we are reporting is that of patient who had had an appendectomy. An irregular filling defect of the cecum, suggestive of a neoplasm on examination, was found at surgery to be an inverted appendical stump.

Gottlieb and associates² emphasized the ever-present danger of misinterpreting feces for an intraluminal defect. Adequate preparation plus air contrast enemas are important. An appendical abscess will give an extraluminal smooth mass but may give enough distortion to make its differentiation from a neoplasm difficult. Regional ileitis, tuberculosis, and adhesions following an appendectomy will, in most cases, involve the ileum as well as distort the cecum. In amebic involvement of the cecum, there is usually evidence of amebic colitis elsewhere.

The presence of an intraluminal defect of the cecum caused by an inverted appendical stump was first described by Artner³ in 1929. With controlled studies, he demonstrated that more than one-third of inverted appendical stumps are persistent and can be visualized in 8% of cases as isolated ring-like structures. Occasionally it is not possible to differentiate a cecal filling defect caused by an inverted appendical stump from a neoplasm and may exist without producing a palpable mass, change in bowel habits, gross blood in the stool, or loss of weight. An unexplained anemia may be the only clinical sign.

From the departments of surgery, Mercy and Cook County hospitals, and Stritch School of Medicine, Loyola University.

The roentgenographic pictures were made by Dr. Fay Squires, Presbyterian Hospital.

1. Vaughn, A. M., and Narsete, E. M.: Diverticulitis of the Cecum, *A. M. A. Arch. Surg.* 65: 763-769 (Nov.) 1952.

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REPORT OF A CASE

A white woman aged 39 was admitted to Mercy Hospital in October, 1952. In March, 1952, a supracervical hysterectomy had been performed for uterine fibroids. At that time, an appendectomy was done. Since then she had been in good health until two weeks prior to admission, when, because of dizziness, she sought medical aid. On examination by an internist, a small mass was palpated in the right lower quadrant of the abdomen and an associated mild anemia was found. On advice of the internist, a barium enema was done and revealed a filling defect in the cecum. She was subsequently referred to one of us (A. M. V.) for surgery.

Physical examination on admission revealed an apparently healthy woman. The blood pressure was 130/80 mm. Hg, and the heart and lungs were normal. Abdominal examination revealed a lower right rectus scar, no tenderness, and no mass in the right lower quadrant. There were no gastrointestinal symptoms, abdominal pain, or weight loss. Vaginal examination revealed that the cervix was small, scarred, mobile, and not tender. On bimanual examination, no lower abdominal masses were palpated. Laboratory findings showed red blood cells, 3,660,000; white blood cells, 8,100 per cubic millimeter; and hemoglobin 12 gm. per 100 cc. The feces did not con-



Fig. 1.—Filling defect in the cecum that represents either an appendical stump or a neoplasm.

tain occult blood. The urine was normal. Barium enema was repeated with air contrast studies, and the cecal filling defect seen two weeks previously was unchanged. A neoplasm could not be ruled out so the patient was prepared for a hemicolectomy on the right side. Succinylsulfathiazole (Sulfasuxidine) was administered for seven days, and neomycin was given for the two days preceding surgery.

At surgery, a right paramedian incision removed the old scar. The cecum was dissected free from the surrounding adhesions, brought into the wound, and walled off from the abdominal cavity. External palpation disclosed a small movable mass in the base of the cecum. There were no palpable lymph nodes in the mesentery. The cecum was incised longitudinally through the anterior taenia and the cecal mucosa inspected. The inverted appendical stump was found, but there was no abnormal growth on it or the surrounding mucosa. The stump was excised, and the cecum was closed in two layers.

The pathologist's report stated, "Specimen consists of a mass of tissue measuring 1.5 by 1 by 1 cm. The surface is red and uneven and at one end a small dimple is noted. The other end has been recently sectioned. Section reveals greyish-tan pliable tissue. Microscopic Diagnosis: Inverted stump of appendix. Focal fibrosis and mild focal chronic inflammation."

The postoperative course was uneventful, and the patient was discharged 10 days after surgery. She has been in good health and asymptomatic since. A repeat barium enema, made six months later, showed an absence of the previously irregular ragged defect in the cecum and a smooth filling defect at the site of surgery.

COMMENT

An inverted appendical stump should be considered in the differential diagnosis of a roentgenographic cecal filling defect in every patient who has had an appendectomy. Barium enemas with air contrast studies should be repeated at frequent intervals, and any change in the size of the lesion should be an indication for exploration. A palpable mass in the right lower quadrant, with an associated unexplained anemia, should be an indication for surgery without a prolonged period of observation. Stabins and Dixon⁴ state that any unexplained anemia, with few or no symptoms, should make carcinoma of the cecum suspect. As stated previously, a cecal neo-



Fig. 2.—Smooth rounded filling defect in the cecum is a result of surgery.

plasm may exist without producing a palpable mass, change in bowel habits, gross blood in the stool, or loss of weight. As long as no neoplasm was found on frozen section in our case, it was thought that cutting the protruding tissue flush with the bowel was sufficient, rather than doing a local excision of the cecum.

SUMMARY

Frequent difficulty in making a positive diagnosis of carcinoma of the cecum in the presence of roentgenographic evidence of a cecal filling defect is discussed. Repeated barium enemas with air contrast studies are emphasized as aids in the differential diagnosis of cecal disease. A case in which there was an irregular filling defect of the cecum that was proved at surgery to be an inverted appendical stump is reported.

30 N. Michigan Ave. (2) (Dr. Vaughn).

4. Stabins, S. J., and Dixon, J. A.: Silent Carcinoma of Cecum, New York J. Med. 51:2140-2146, 1951.

FATAL HEMORRHAGE FOLLOWING NEEDLE BIOPSY IN UREMIA

REPORT OF A CASE

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I have encountered only one serious hemorrhage following needle biopsy in over 600 such biopsies of the liver and other organs or tumor masses. In this case, the patient's prognosis was hopeless in any event. However, the experience suggests the advisability of listing uremia among the contraindications to needle biopsy or at least suggests that the increased hazard of hemorrhage in uremia be carefully considered.

REPORT OF A CASE

A 54-year-old white married male rubber factory worker was admitted to Winter Veterans Administration Hospital on Dec. 19, 1952. He stated he had been feeling weak and tired for the past year. Two weeks before admission, he had had an upper respiratory infection together with a periodontal abscess. The diseased tooth was extracted after four days of penicillin therapy. Since then, he had become steadily worse, with anorexia, morning nausea and retching with no vomiting, slight fever, a constant sense of fatigue, headache, shortness of breath on exertion, and intermittent sharp epigastric pain. During the week past, he had been constantly drowsy and unable to work. Diminished excretion of urine, which was dark brown and smoky in appearance, had been present for five days. His fluid intake had been no more than three or four glasses of water per day. For the past four days he had noted morning swelling of the face and hands, and swelling of the feet and ankles during the day. The day before admission, he thought his skin had a yellow tinge. He had lost 10 lb. (4.5 kg.) during the preceding two weeks. There had been no change in the color of his stools, no nocturia, and no nocturnal dyspnea. His personal habits, his history, and his family history were noncontributory. No history of exposure to toxic substances could be obtained, other than his employment handling rubber tires and the occasional use of mercurous chloride (calomel).

The patient was a well-nourished and well-developed white man who appeared moderately ill. He was drowsy but oriented and cooperative. He was 70 in. (1.77 m.) tall and weighed 130 lb. (59 kg.). His usual weight had been 145 lb. (65.8 kg.) prior to the present illness. His temperature was 99.8 F, his pulse rate 60 per minute with occasional extrasystoles, and his blood pressure 136 mm. Hg systolic and 86 mm. Hg diastolic. The skin and scleras were mildly icteric. The pupils reacted normally, extraocular movements were intact, and the ocular fundi were not abnormal. The remaining teeth appeared in fair condition. The chest was symmetrical, with bilaterally equal and adequate expansion. The lung fields were clear to percussion, but fine moist rales were audible at both lung bases posteriorly. The heart was not abnormal. The abdomen was soft. A smooth, tender liver edge was palpable 5 cm. below the right costal margin. Bilateral tenderness in the loin could be elicited by kidney punch. There was slight edema of the face and lower legs. Tendon reflexes were hyperactive. There was no lymphadenopathy.

The leukocyte count on admission was 7,500 per cubic millimeter, with a normal differential count. Erythrocytes numbered 4,100,000 per cubic millimeter. The hemoglobin level was 11.7 gm. per 100 cc. (Haden-Hausser method), the hematocrit was 36%, and the corrected sedimentation rate was 32 mm. per hour (Wintrobe method). Three blood cultures produced no growth. Serum agglutination tests for typhoid H and O antigens, paratyphoid A and B, Brucella abortus, Pasteurella tularensis, Proteus OX19, and heterophil antibody were not significant. Serologic tests for syphilis were negative. Bleeding, clotting, clot retraction, and prothrombin times were within normal limits.

From the Medical Service, Winter Veterans Administration Hospital. This case is reported with the permission of Dr. Joseph E. Smelser of the Medical Service and Dr. Alfred Plaut, pathologist.

The urine was acid, ranged in specific gravity from 1.010 to 1.019, was negative for sugar and bromide, and showed albumin (4+), and macroscopically visible blood with numerous white and red cells visible microscopically, as well as variable numbers of hyaline, granular, and white and red blood cell casts. Tests for heavy metals in the urine were negative. Urine urobilinogen was reported present in high concentration on a single determination. The blood urea nitrogen ranged between 63 and 66 mg. per 100 cc. during the first week of hospitalization. The serum chlorides were 90 mEq. per liter, and the carbon dioxide combining power of the plasma 46 vol. %. The serum bilirubin was 0.2 mg. per 100 cc., the serum alkaline phosphatase was 6.6 Bodansky units per 100 cc., and the inorganic phosphorus content was 6.1 mg. per 100 cc. The cephalin-cholesterol flocculation test was negative, but the sulfobromophthalein sodium (Bromsulphalein) retention at 45 minutes was 17% (5 mg. per kilogram of body weight injected).

Roentgenograms of the chest were taken Dec. 22, 24, and 29. In comparison with a roentgenogram taken in 1948, these showed consistently higher diaphragmatic levels, with widening of the heart shadow presumed to be positional. In addition, infiltrations of somewhat homogeneous appearance were seen in both lower lung fields, varying in location and extent among

cycles (Aureomycin) and penicillin were administered. Fifteen per cent dextrose infusions were repeatedly administered intravenously, with no effect on the oliguria. On Dec. 29, a leukocyte count of 11,850 per cubic millimeter was recorded, with 82% granulocytes. The blood urea nitrogen was now 136 mg. per 100 cc., the creatinine was 12.9 mg. per 100 cc., the serum chloride was 72 mEq. per liter, and the carbon dioxide combining power was 30 vol. %. The serum albumin was 3.3 gm. and the globulin was 2.2 gm. per 100 cc., the calcium was 10 mg. per 100 cc. and phosphorus was 12.4 mg. per 100 cc. The following day, serum sodium was 121.5 mEq. per liter and potassium was 8.2 mEq. per liter. An attempt was made to counter hyponatremia by intravenous infusion of 5% saline solution, of which 200 cc. was administered Dec. 29 and 125 cc. was given Dec. 30.

The patient appeared to be rapidly approaching death, and the impatiently awaited diuresis heralding recovery from what was assumed to be lower nephron nephrosis did not materialize. As a last measure, to help in arriving at a more definitive diagnosis, needle biopsies of the right kidney and of the liver were done at 2:30 p. m. on Dec. 30. Technique on this occasion was flawless; the patient cooperated well despite his stupor, and excellent specimens were obtained bloodlessly with a single puncture of each organ. A light scratching on the surface of the liver was deliberately produced before penetration of the liver was attempted. This maneuver was designed to gauge by the sense of touch the extent of possible laceration if puncture should be carried out during respiration because of the patient's stuporous mental state. The scratches thus defined the respiratory excursion of the liver at this point. The excursion was deemed excessive, and the needle was withdrawn until the patient proved he could cooperate by holding his breath if continuously exhorted to do so throughout the procedure. After that, needle puncture was uneventful. An intercostal approach was used. After the biopsy the patient gradually lapsed into coma, and he died at midnight. Hemorrhage was not suspected from the clinical observations.

The needle biopsies revealed only secondary minor hepatic changes but revealed the presence of severe acute and subacute glomerulonephritis (fig. 1), making evident the hopelessness of the prognosis in the light of the patient's clinical course. At autopsy, the abdominal cavity was found to be filled with 2 liters of fluid and clotted blood. Bilateral pleural effusions were not bloody.

Right perirenal hemorrhagic infiltration was present, possibly amounting to half a liter of blood. The puncture wounds in the convexity of the right lobe of the liver and in the posterior surface of the right kidney were no larger than needle size and showed no surrounding hemorrhagic infiltration of the capsules or parenchyma (fig. 2). On section, the needle tracks were evident as narrow streaks without surrounding hemorrhage. Neither puncture entered any macroscopic vessel or duct, nor did the renal puncture reach the pelvis or calix. It was evident that bleeding in both instances was a result of defection of hemostasis rather than of trauma.

Other observations of interest at autopsy included rheumatic myocardial lesions of varying ages, subendocardial and gastric mucosal hemorrhages, generalized and cerebral edema of moderate degree, persistence of the thymus, and two necrotic foci in the anterior pituitary. The pituitary necroses were 2 to 4 and 7 to 10 days old, according to Sheehan's criteria,¹ and therefore unrelated to the terminal hemorrhage. The liver showed a moderate degree of central stasis and some increase in the portal connective tissue.

The kidneys were large, pale, and smooth, with many sharply circumscribed small surface hemorrhages. They were soft and soggy in texture. The cortices were slightly wider than normal, with fairly distinct striations and with normal outlines of the slightly darker pyramids. The glomeruli were barely visible, and

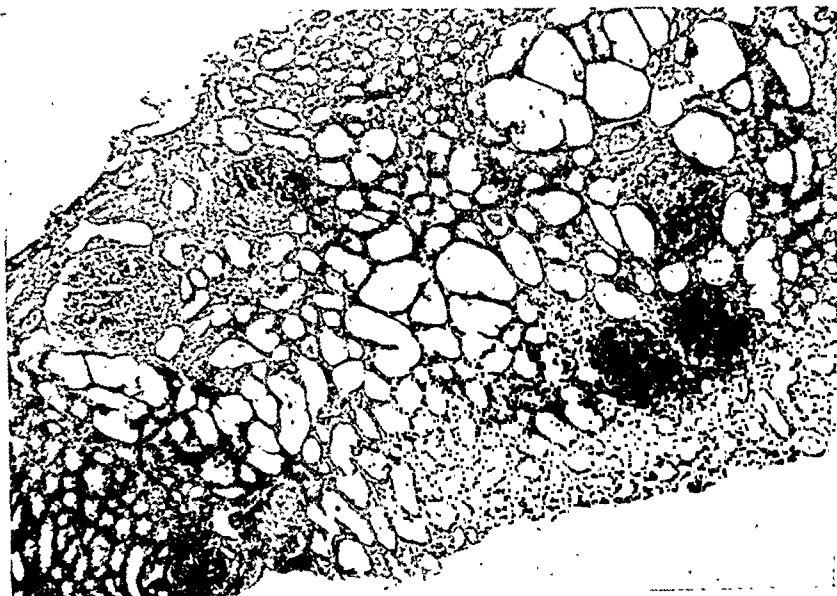


Fig. 1.—Acute glomerulonephritis, section of needle biopsy of kidney, hematoxylin and eosin stain ($\times 59$).

the films. These presumably represented areas of uremic congestion and edema, although they were interpreted at the time as atypical pneumonias and effusions. An abdominal roentgenogram proved noncontributory. Electrocardiograms taken Dec. 20 and 30 showed slurring and low voltage of the ventricular complexes. The second electrocardiogram showed, in addition, lower and broader P waves, with increase in the P-R interval from 0.16 to 0.24 second, and widening of the QRS from 0.09 to 0.11 second, suggesting the development of myocardial conduction difficulty.

The patient was confused, restless, and drowsy throughout his hospital course. Nausea, vomiting, and diarrhea were intermittent. Abdominal and low back pain and chilliness were noted by the patient. Remittent fever, with temperature as high as 100 F, was present during the first four days of hospitalization, after which the patient was afebrile. Oliguria was present throughout the hospital course, varying from a 24 hour maximum of 370 cc. to a minimum of 60 cc., in general gradually decreasing in quantity until death. Blood pressure remained at normal level. Tetanic muscular twitchings appeared Dec. 28.

Clinical observations pointed to acute hepatitis and a lower nephron nephrosis. The patient was digitalized, and chlortetra-

1. Sheehan, H. L. "Postpartum Necrosis of the Anterior Pituitary," *J. Clin. Endocrinol.* 4:159-214, 1937.

the papillae were not abnormal. The mucosae of the pelvis and calices were irregularly but widely hemorrhagic. Histologically, most of the glomeruli were bloodless; some were filled with leukocytes. Crescents were few. In some glomeruli the vascular loops showed little change, but the capsule was notably thickened next to the vascular pole. There was much interstitial inflammation, consisting mostly of mononuclear cells. Many tubules contained blood and fibrin. Other than the presence of the needle track, there were no gross or microscopic differences between the two kidneys.

COMMENT

For two liters of blood to have spilled into the peritoneal cavity, one must envision a stream of blood amounting to 4 cc. per minute continuously during the nine and one-half hours of the patient's survival. The minor trauma of a puncture wound no more than 3 mm. in diameter cannot by itself account for such hemorrhage. A defect of hemostasis must have been present. The co-existence of hemorrhage from the similarly small needle wound of the kidney, in which less blood was lost presumably because of the lesser distensibility of the perirenal tissues, would appear to confirm the existence of such a defect. The needles entered no large blood vessels. The bleeding time, coagulation time, clot retraction time, and prothrombin time of this patient were determined to be within normal limits. Persistent oozing had not occurred following venipunctures, nor did any occur from the skin incisions of the two needle biopsies. Capillary fragility was not determined. Although hemorrhages were later found in the subendocardial area, stomach mucosa, and renal pelvis, there had been no visible evidence of hemorrhages as petechiae or ecchymoses or of hemorrhagic discharges other than the hematuria connected with the nephritis and a brief and minor epistaxis that occurred Dec. 23.

Uremia has not previously been listed as a contraindication to the performance of needle biopsies.^{1a} Indeed, it is rarely listed in classifications of the causes of hemorrhage.² Nevertheless, hemorrhage as a complication of nephritis and uremia has been familiar to clinicians since the days of Richard Bright (1827). Epistaxis and retinal and cerebral hemorrhages are often observed. In a review of the hemorrhagic manifestations sometimes seen in nephritis, Riesman³ also listed metrorrhagia, hemoptysis, hematemesis, and hemorrhage into the ear. Mucosal hemorrhages in the gastrointestinal tract in cases of uremia were reported at autopsy in 52.9% of 136 cases by Jaffe and Laing⁴ and in 21.1% by Mason.⁵ These mucosal hemorrhages are the commonest digestive tract lesions seen in uremia. Hemorrhagic pleurisy and pericarditis may occur. Mediastinal hemorrhage has been reported.^{5a} Jaffe and Laing⁴ mention also hemorrhages in the epicardium, lung, mucosa of the renal pelvis, urinary bladder, uterus, and vagina. Six of their patients showed so many petechiae of the skin that the diagnosis on admission suggested a blood dyscrasia. Generalized purpura involving the skin and mucous membranes is seen occasionally as a terminal sign in uremia. Riesman³ reported two such cases. Davidson⁶ observed three instances of purpura in chronic interstitial nephritis associated with marked elevations of blood urea levels, reported as 245, 360, and 428 mg. per 100 cc.

Streicher⁷ produced a uremia-like condition in dogs by the slow intravenous injection of large amounts of

urea and observed a congested and hemorrhagic intestinal mucosa. Bollman and Mann⁸ produced hemorrhagic lesions in the stomach that were associated with marked elevations of blood urea levels by transplantation of the ureters into the intestine of dogs.

The mechanism of the hemorrhagic state occurring in uremia has never been clearly elucidated. Vascular degeneration and hypertension are not necessary factors. In a consideration of the possible role of arteriosclerotic changes in the intestinal tract as a basis for the hemorrhages in uremia, Jaffe and Laing⁴ found that vascular necrosis was always in close proximity to the necrosis of the mucosa and was never observed during the congestive or hemorrhagic stage of the lesions. The vascular necrosis was distinctly inflammatory and thus undoubtedly secondary, as is seen commonly in bacillary dysentery.

Schoenemann⁹ reported the postmortem observation in persons with nephritis of numerous superficial hemorrhages into the nasal mucosa. The capillaries near the

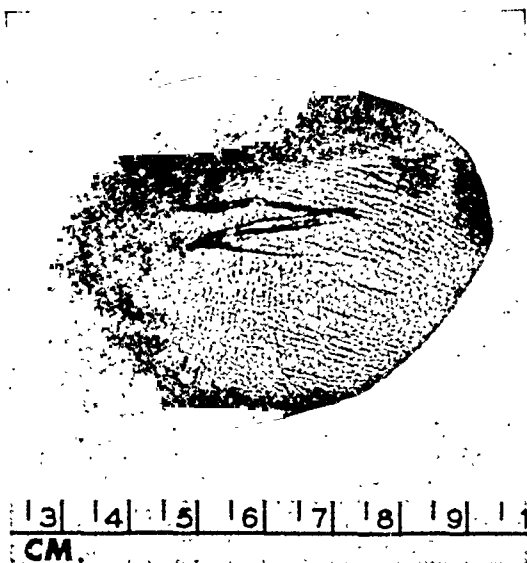


Fig. 2.—Photograph of a portion of the surface of the right lobe of the liver, showing the site of needle puncture and superficial scratching of the liver capsule.

epithelial surface were increased in number and in many cases had broken through the basement membrane, the capillary loops having forced their way through the basal epithelial cells. The capillary walls appeared normal, and the deeper vessels showed no degenerative changes. These

- 1a. Terry, R.: Risks of Needle Biopsy of the Liver, *Brit. M. J.* 1: 1102-1105, 1952.
2. Wintrobe, M. M.: *Clinical Hematology*, ed. 3, Philadelphia, Lea & Febiger, 1951, p. 255.
3. Riesman, D.: Hemorrhages in the Course of Bright's Disease with Special Reference to the Occurrence of a Hemorrhagic Diathesis of Nephritic Origin, *Am. J. M. Sc.* 134: 709-716, 1907.
4. Jaffe, R. H., and Laing, D. R.: Changes of the Digestive Tract in Uremia, *Arch. Int. Med.* 53: 851-864, 1934.
5. Mason, E. E.: Gastrointestinal Lesions Occurring in Uremia, *Ann. Int. Med.* 37: 96-105, 1952.
- 5a. Brown, N.; Tomsykoski, A. J., and Stevens, R. C.: Mediastinal Hemorrhage Secondary to Uremia, *Am. J. Med.* 15: 588-590, 1953.
6. Davidson, L. S. P.: Classification and Treatment of the Purpuras, *Proc. Roy. Soc. Med.* 30: 715-723, 1937.
7. Streicher, M. H.: Experimental Uremia: Uremic Effects, *Arch. Int. Med.* 42: 835-845, 1928.
8. Bollman, J. L., and Mann, F. C.: Nitrogenous Constituents of Blood Following Experimental Transplantation of Ureters into the Intestine of Intestine, *Proc. Staff Meet., Mayo Clin.* 2: 134-136, 1927.
9. Schoenemann, A.: *Arch. Laryng. u. Rhinol.* 11: 190-192, 1901-1902; quoted by Riesman.³

changes were not observed in diseases other than nephritis. Riesman³ suggested that the changes were due to a circulating substance that weakened the capillary walls and surrounding structures.

Jaffe and Laing,⁴ in their studies of the digestive tract in uremia, could detect no alterations of the walls of the capillaries or small veins, except for extreme dilatation of these vessels in contrast to narrow arterioles and small arteries. They suggested that the hemorrhages might be the result of disturbances in the innervation of the terminal vascular bed. They said that the increased permeability that is associated with the extreme widening of the small blood vessels leads first to edema and later to hemorrhages. Ulceration was attributed to bacterial invasion of the devitalized hemorrhagic areas.

No consistent coagulation defect has been demonstrated in the reported instances of uremic hemorrhage. Boyd¹⁰ states that there is a curious tendency toward hemorrhages in uremia for no apparent reason and that there is no satisfactory explanation beyond the vague suggestion of some toxic action on the vessel walls. Moore¹¹ states that the purpura of uremia has never been adequately explained and suggests that, since it is known that there is material damage to the liver in uremia, hypoprothrombinemia may be a cause. Atchley¹² reports that an elevated prothrombin time has been observed in a number of uremic patients at the Presbyterian Hospital in New York who showed hemorrhagic tendencies. On the other hand, Fishberg¹³ and Allen¹⁴ state that the coagulation time of the blood is usually increased in uremia. Davidson⁶ found no reduction in the number of platelets in two out of three cases in which examinations were made. A decreased capillary resistance in some cases of chronic renal disease has been reported.¹⁵

It is apparent that a study of hemostasis in uremia is needed. A consideration of the studies of Streicher,⁷ Schoenemann,⁹ and Jaffe and Laing⁴ leads to the conjecture that an increase in capillary fragility may prove to be a clinically demonstrable defect in uremic patients. Capillary fragility was not determined in the case reported above. Had it been determined and found appreciably increased, the needle biopsies would not have been performed. Since this experience, it has been my invariable practice to add the capillary fragility determination to the bleeding, clotting, clot retraction, and prothrombin times done prior to needle biopsy. A few instances have been found, in the absence of uremia, in which increased capillary fragility seemed to contraindicate biopsy, although other tests of hemostasis were normal.

SUMMARY

In a case of uremia, hemorrhages followed nonlacerating needle biopsies of liver and kidney. Needle biopsy may be contraindicated in some instances of uremia.

10. Boyd, W.: *The Pathology of Internal Diseases*, ed. 5, Philadelphia, Lea & Febiger, 1951, p. 421.

11. Moore, R. A.: *A Textbook of Pathology*, ed. 2, Philadelphia, W. B. Saunders Company, 1951, p. 756.

12. Atchley, D. W.: Uremia, in Cecil, R. S., and Loeb, R. F.: *A Textbook of Medicine*, ed. 8, Philadelphia, W. B. Saunders Company, 1951, p. 956.

13. Fishberg, A. M.: *Hypertension and Nephritis*, ed. 4, Philadelphia, Lea & Febiger, 1939, p. 182.

14. Allen, A. C.: *The Kidney: Medical and Surgical Diseases*, New York, Stratton, Inc., 1951, p. 68.

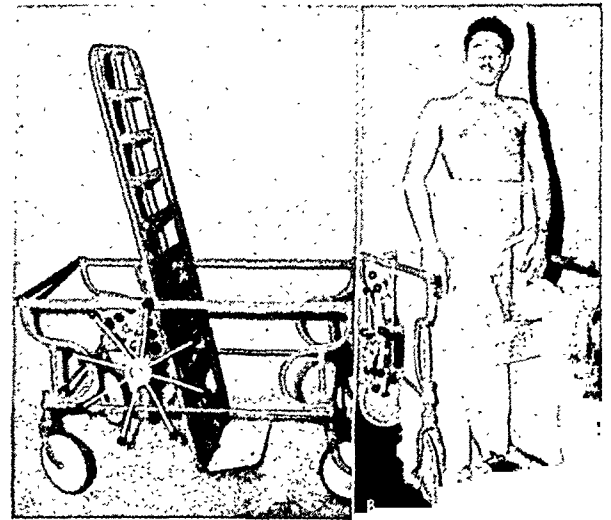
15. Schiller, P.: Studies on Capillary Resistance, *Acta med. Scandinavica*, 1954, 122.

USE OF A TILT-TABLE IN EARLY REHABILITATION OF PARAPLEGIC PATIENTS

Samuel Climo, M.D., New Haven, Conn.

In discussing the prophylaxis of decubitus ulcers in paraplegic patients, it must be admitted that the ulcers develop in patients in every hospital regardless of size and over-all efficiency. The earlier the patient leaves his bed and avoids or reduces the complications of prolonged immobilization, namely, bedsores, decalcification of bones, and genitourinary infections, the better are his chances for rehabilitation, both occupational and psychological. The opportunities for rehabilitation are made available early by the use of a modified, four-wheeled stretcher that is capable of securing and maintaining the paraplegic patient in the erect posture (see figure) as soon as the medical status permits.

A patient can remain strapped in the erect position for many hours, since the plantar integuments, composed of highly specialized tissue, are capable of withstanding prolonged pressure from body weight. Thus, a patient can engage in skillful occupation. Since the table rotates



A, modified four-wheeled stretcher with the top tilted vertically and, B, patient strapped to the top and tilted.

from a horizontal position to a vertical one, any intermediate incline can be used for resting, even sleep. The displacement of floor space by the converted table does not exceed appreciably that of the ordinary wheelchair.

The tilt-table is not available yet commercially. The ordinary four-wheeled stretcher can be converted in any institutional workshop. The horizontal top of the stretcher can be removed and the width of the frame increased to permit the top to rotate on a horizontal axis. Placing the axis off center permits the top to rotate through an angle approximating 90 degrees to the floor. When the tilt-table is in the vertical position, the broad footrest terminates just above the level of the floor. Quarter gears are welded on the underside of the top to rotate on a pivoting axis. A simple gear-locking mechanism is employed to maintain the incline at any level.

291 Whitney Ave.

Plastic Surgeon, Hospital of St. Raphael.

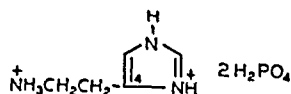
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., Secretary.

Histamine Phosphate-U.S.P.—The structural formula of histamine phosphate may be represented as follows:



Actions and Uses.—Histamine exists in various organs and tissues of the body, probably in an inert form. It produces local vasodilatation when released from the cell under appropriate stimuli, such as trauma, shock, and possibly allergic reactions. When injected into an animal, histamine stimulates gastric secretion and produces flushing, nausea, bronchospasm, fall in blood pressure, arrhythmia, and gastrointestinal contraction. It acts directly on the receptive substance in smooth muscle.

Histamine, although absorbed orally, produces highly variable effects when administered by this route. Salts of histamine are usually administered subcutaneously, intravenously or intramuscularly.

Histamine phosphate is employed as a test for gastric secretory activity. It also produces temporary benefit in some patients with Ménière's syndrome, including those showing sudden deafness. It has been used in the treatment of multiple sclerosis; although the effects are equivocal, they deserve further study. Some patients apparently experience temporary amelioration of the disease after histamine therapy.

Although histamine has been recommended for treatment of migraine and certain cephalgias, the evidence of value is not convincing. Because of the known hazards of histamine therapy, the drug should not be used indiscriminately in these conditions.

Histamine is a potent drug, and overdosage or administration to susceptible persons may give rise to serious reactions. Vasomotor collapse, shock, and even death may occur quickly if the drug is administered too rapidly or in too great a quantity. Thus, when calculating dosages, it should be remembered that the salt contains only about 36% of the active base. Epinephrine hydrochloride is the antidote of choice in histamine overdosage and should be given intramuscularly or, in severe poisoning, intravenously. A solution of epinephrine hydrochloride 1:1,000 should always be readily available at the time histamine is administered.

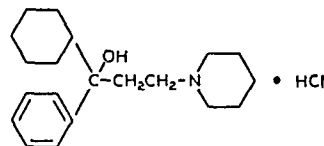
Dosage.—For the treatment of Ménière's syndrome and multiple sclerosis, a slow intravenous injection of histamine phosphate, 1.1 mg. per 100 cc., in isotonic sodium chloride solution may be administered. The initial rate of administration should not exceed 20 to 30 drops per minute and should never exceed 50 to 60 drops per minute. A maximum of 250 cc. of such a solution may be administered in not less than 90 minutes. The therapy may be repeated daily until improvement is noted or until it is determined that the patient will not respond.

Any reaction should be treated immediately with the intramuscular or intravenous injection of 1:1,000 epinephrine hydrochloride.

Don Baxter, Inc., Glendale, Calif.

Solution Histamine Phosphate: 250 cc. Vacoliter bottles. A solution in isotonic sodium chloride containing 1.1 mg. of histamine phosphate in each 100 cubic centimeters.

Trihexyphenidyl Hydrochloride.—Artane Hydrochloride (Lederle).— $\text{C}_{20}\text{H}_{21}\text{NO}\cdot\text{HCl}$.—M.W. 337.92.—3-(1-Piperidyl)-1-phenyl-1-cyclohexyl-1-propanol hydrochloride.—The structural formula of trihexyphenidyl hydrochloride may be represented as follows:



Actions and Uses.—Trihexyphenidyl hydrochloride, a synthetic piperidyl compound, exhibits an atropine-like action and exerts an antispasmodic effect on smooth muscle and an inhibitory action on the parasympathetic nervous system. Thus, spasm of smooth muscle is relieved by direct action and by indirect parasympathetic release. The drug also relieves spasticity of voluntary muscle, partly because of its parasympatholytic action and partly because of action on the cerebral motor centers. Unlike atropine, the action of trihexyphenidyl is strongest in producing desirable, relaxant effects and weakest in producing undesirable side-effects. Compared with atropine, trihexyphenidyl produces about one-half as intense antispasmodic action, one-third as great mydriatic action, one-eighth as much antialagogue effect, and one-tenth as much cardiovagal inhibition.

Trihexyphenidyl hydrochloride is useful for the treatment of all forms of parkinsonism, including the postencephalitic, arteriosclerotic, and idiopathic types. It reduces the muscular rigidity and relieves the depression and mental inertia characteristic of this syndrome. The drug is especially effective in reducing the rigidity produced by muscle spasm, thus increasing the ability of the patient to achieve coordination of muscular motions. Tremor is usually reduced, but in some patients who have been severely spastic, it may become more perceptible as spasticity is relieved. Sialorrhea is reduced, but with less accompanying mouth-dryness, blurred vision, or mydriasis than with the use of atropine. Trihexyphenidyl is particularly useful in the treatment of arteriosclerotic parkinsonism because, unlike atropine, it usually does not tend to precipitate glaucoma.

Trihexyphenidyl hydrochloride thus far has seldom produced severe reactions with therapeutic dosages. Some patients experience minor side-effects such as dryness of the mouth, blurring of vision, dizziness, mild nausea, or nervousness. Compared with the symptoms of unrelieved parkinsonism, they are usually not troublesome and may be controlled by adjustment of dosage or time of administration. These side-effects tend to decrease with continued use of the drug. The infrequent but more severe reactions of mental confusion, agitation, or nausea with vomiting tend to occur in arteriosclerotic patients or in persons exhibiting other drug idiosyncrasies. Such patients must develop tolerance to the drug gradually, beginning with a smaller initial dose and increasing the dosage more slowly until an effective level is reached. If a severe reaction occurs, administration of the drug should be discontinued temporarily for several days and then resumed at a lower dosage level. Hypertension or cardiac, liver, or kidney disorders do not contraindicate use of the drug, but patients with these conditions should be carefully observed.

Dosage.—Trihexyphenidyl hydrochloride is administered orally. The usual initial dose is 1 mg. for the first day. If the patient is already receiving treatment with other agents, this initial dose should be substituted for a part of the current therapy. As the dosage of trihexyphenidyl is gradually increased, other medication should be decreased until the drug has replaced the former treatment or until an effective balance has been achieved. With prior therapy and in arteriosclerotic or sensitive patients, daily increments of the dose should be small until satisfactory tolerance is attained. If prior medication or unusual reactivity is not involved, the dosage is increased to 2 mg. for the second day, with subsequent increments of 2 mg. daily until a total daily amount of 6 to 16 mg. is reached. Postencephalitic patients may require as much as 12 to 15 mg. daily. At the lower level of daily dosage, the total amount can be divided into three equal parts, taken near meal times; at a higher level, a fourth dose at bedtime is required. Patients are allowed to choose whether to take the medication before or after meals. Postencephalitic patients, who have more excessive

Dr. Robert Wells Lippman

salivation, will prefer administration after meals and may require small doses of atropine sulfate as an adjuvant. Whenever the mouth becomes excessively dry, the drug can be taken before meals unless this causes nausea; if it is necessary to administer the dose after meals, dryness can be allayed by hard candy, gum, or extra intake of fluid.

Tests and Standards.—

Physical Properties: Trihexyphenidyl hydrochloride is a white, odorless solid, m.p. 249.0-249.5° (with slight decomposition). It is freely soluble in methanol, and very slightly soluble in ether and in benzene. The approximate amounts which dissolve at 25° in the following solvents to form 100 ml. of solution are: 6 gm. in alcohol, 5 gm. in chloroform, and 1 gm. in water. The pH of a 1% solution is 5.5-6.0.

Identity Tests: Dissolve about 50 mg. of trihexyphenidyl hydrochloride in 25 ml. of water. To 5 ml. of the solution add dropwise a saturated aqueous solution of picric acid; a yellow precipitate forms. To another 5 ml. portion add 1 ml. of diluted nitric acid and 1 ml. of silver nitrate T.S.; a white precipitate forms which is soluble in excess ammonia T.S. (presence of chloride). To another 5 ml. portion of the solution add 1 ml. of diluted hydrochloric acid and 2 ml. of potassium ferrocyanide T.S.; a light green precipitate forms on standing. To another 5 ml. portion add dropwise 0.1 N sodium hydroxide; a white precipitate forms.

Transfer to a 50 ml. volumetric flask 25 mg. of trihexyphenidyl hydrochloride, fill to the mark with 0.1 N hydrochloric acid, and mix. Measure the absorbancy in a 1 cm. quartz cell, using 0.1 N hydrochloric acid as a blank. The solution exhibits ultraviolet absorption maxima at about 252 and 257 m μ , a minimum at about 254 m μ , and a point of inflection at about 262 m μ .

Purity Tests: Dry about 1 gm. of trihexyphenidyl hydrochloride, accurately weighed, at 105° for 4 hours; the loss in weight is not more than 2.0%.

Char about 0.4 gm. of trihexyphenidyl hydrochloride, accurately weighed, over a low flame, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh; the residue does not exceed 0.05%.

Assay: (Trihexyphenidyl Hydrochloride) To prepare a standard, recrystallize the trihexyphenidyl hydrochloride as follows. To 5 ml. of a saturated solution of trihexyphenidyl hydrochloride in methanol add petroleum ether slowly with vigorous stirring until precipitation is complete. Filter through a fritted glass filter, and wash the precipitate with three 5 ml. portions of a 1:1 mixture of methanol and petroleum ether. Repeat the recrystallization and dry in a vacuum over phosphorus pentoxide at room temperature for 24 hours. Dissolve 0.1 gm. of the recrystallized trihexyphenidyl hydrochloride, accurately weighed, in 5 ml. of methanol. Transfer the solution to a 100 ml. volumetric flask, fill to the mark with water, and mix. Transfer to separate 100 ml. beakers 3, 5, 10, and 15 ml. of the solution. Add 1 ml. of methanol and enough water to dilute the solutions in each beaker to 20 ml. Add 6 ml. of freshly prepared 2% ammonium reineckate in methanol. Heat on a steam bath about 30 seconds. Cool to room temperature with intermittent swirling to induce crystallization. If crystallization does not occur on cooling, reheat the solution. Refrigerate the mixture for 2 hours and filter with suction, collecting the precipitates in fritted glass funnels. Wash the precipitates with 5 ml. portions of ice-cold water until the filtrates are colorless. Place test tubes under the stems of the funnels in the suction flasks, and, with the aid of suction, wash the precipitates into the test tubes with 2 ml. portions of acetone until the precipitates are entirely dissolved. Transfer the acetone solutions to 10 ml. volumetric flasks, fill to the marks with acetone, and mix. Spectrophotometrically determine the absorbancies in 1 cm. cells at 526 m μ , using acetone as a blank. Plot the absorbancies against concentrations to give a standard curve. Dissolve about 0.1 gm. of the trihexyphenidyl hydrochloride to be analyzed, accurately weighed, in 5 ml. of methanol. Transfer the solution to a 100 ml. volumetric flask, fill to the mark with water, and mix. Transfer to a 100 ml. beaker 10 ml. of the solution, add 1 ml. of methanol and 9 ml. of water, and proceed as before. Read the concentration of trihexyphenidyl hydrochloride from the standard curve. The amount of anhydrous trihexyphenidyl hydrochloride is not less than 98.0 nor more than 102.0%.

Dosage Forms of Trihexyphenidyl Hydrochloride

ELIXIRS, Identity Tests: To 100 ml. of the elixir add with stirring 50 ml. of ammonia T.S. and allow the mixture to stand for 30 min. Using suction, filter the mixture through a fritted glass filter funnel. Wash the precipitate with three 5 ml. portions of water. Place a test tube under the stem of the funnel in the suction flask and, with the aid of suction, wash the precipitate into the test tube with five 3 ml. portions of 0.1 N hydrochloric acid. Transfer the solutions to a 50 ml. volumetric flask, fill to the mark with 0.1 N hydrochloric acid, and mix. The solution responds to the spectrophotometric identity test for the active ingredient in the monograph for trihexyphenidyl hydrochloride.

Assay: (Trihexyphenidyl Hydrochloride) Transfer to a 125 ml. Erlenmeyer flask a volume of elixir, accurately measured, equivalent to about 10 mg. of trihexyphenidyl hydrochloride, add 10 ml. of diluted hydrochloric acid, and proceed with the spectrophotometric assay as directed in the monograph for trihexyphenidyl hydrochloride starting with, "Add 6 ml. of freshly prepared 2% ammonium reineckate in methanol." The amount of trihexyphenidyl hydrochloride is not less than 95.0 nor more than 105.0% of the labeled amount.

(Alcohol) To 100 ml. of elixir add 100 ml. of water and on the solution run a U. S. P. alcohol determination. The amount of alcohol is not less than 90.0 nor more than 110.0% of the labeled amount.

TABLETS, Identity Tests: Powder a number of tablets equivalent to about 25 mg. and triturate the powder with 10 ml. of 0.1 N hydrochloric acid. Transfer the mixture to a 15 ml. centrifuge tube and centrifuge for 10 min.

at about 2,500 rpm. With the aid of suction, filter the supernatant liquid through a fritted glass filter funnel into a test tube placed under the stem of the funnel in the suction flask. Add 10 ml. of 0.1 N hydrochloric acid to the centrifuge tube, break up the residue at the bottom of the tube, and stir thoroughly. Centrifuge the mixture again and filter the supernatant liquid. Transfer the filtrate to a 50 ml. volumetric flask, fill to the mark with 0.1 N hydrochloric acid, and mix. The solution responds to the spectrophotometric identity test for the active ingredient in the monograph for trihexyphenidyl hydrochloride.

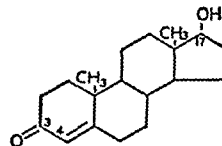
Assay: (Trihexyphenidyl Hydrochloride) Weigh 20 tablets and powder them. Transfer to a 50 ml. centrifuge tube an amount of powder, accurately weighed, equivalent to about 20 mg. of trihexyphenidyl hydrochloride. Add 5 ml. of water and heat in a steam bath for 30 min., stirring the mixture until the powder is thoroughly wetted. Remove the mixture from the bath, add 15 ml. of methanol, and stir the mixture until it is thoroughly wetted. Place the tube in a steam bath, stir the mixture continuously, and allow the methanol to boil vigorously about 2 minutes. Centrifuge the mixture for 5 minutes at about 3,000 rpm. Pour the supernatant liquid into a 250 ml. beaker containing several glass beads. Repeat the extraction with four additional 15 ml. portions of methanol. Evaporate the combined methanol extracts to about 5 ml. and add 20 ml. of water. Transfer the solution to a 50 ml. volumetric flask, fill to the mark with water, and mix. Transfer 20 ml. of this solution to a 100 ml. beaker and proceed with the spectrophotometric assay as directed in the monograph for trihexyphenidyl hydrochloride starting with, "Add 6 ml. of freshly prepared 2% ammonium reineckate in methanol." The amount of trihexyphenidyl hydrochloride is not less than 95.0 nor more than 105.0% of the labeled amount.

Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

Elixir Artane Hydrochloride: 473 cc. and 3.78 liter bottles. A flavored elixir containing 0.5 mg. of trihexyphenidyl hydrochloride in each cubic centimeter. Preserved with 0.08% methylparaben and 0.02% propylparaben.

Tablets Artane Hydrochloride: 2 and 5 mg. U. S. trademark 500,574.

Testosterone-U.S.P.—Androlin (Lincoln).—C₁₉H₂₈O₂.—M.W. 288.41.—The structural formula of testosterone may be represented as follows:



Actions, Uses, and Dosage.—Testosterone in aqueous suspension apparently has a slightly lesser intensity and slightly greater duration of androgenic action than testosterone propionate. See monograph on testosterone propionate in N. N. R.

Tests and Standards.—

Dosage Forms of Testosterone

SUSPENSIONS, Identity Tests: Filter through a fritted glass funnel of fine porosity an amount of suspension equivalent to about 0.15 gm. of testosterone. Wash the residue with two 10 ml. portions of water and dry in a vacuum desiccator over phosphorus pentoxide. The residue responds to the U. S. P. identity tests for testosterone.

Assay: (Testosterone) Transfer to a fritted glass funnel of fine porosity an amount of suspension, accurately measured, equivalent to about 0.15 gm. of testosterone. Remove the suspending medium with gentle suction and wash the residue with three 10 ml. portions of water. Quantitatively transfer the testosterone to a 100 ml. volumetric flask by dissolving the residue in 25 ml. of alcohol and washing the funnel thoroughly with five 10 ml. portions of alcohol. Fill the flask to the mark with alcohol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 5 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 241 m μ , using alcohol as a blank. The concentration of testosterone in the solution in mg./ml. = absorbancy $\div$ 54. The amount of testosterone is not less than 90.0 nor more than 110.0% of the labeled amount.

Bio-Intrasol Laboratories, Inc., Brooklyn.

Aqueous Suspension Testosterone with Procaine Hydrochloride 1%: 10 cc. vials. A suspension containing 25 or 50 mg. of testosterone in each cubic centimeter. Preserved with thimerosal 1:10,000.

Lincoln Laboratories, Inc., Decatur, Ill.

Aqueous Suspension Androlin: 10 cc. vials. A suspension containing 25 or 50 mg. of testosterone in each cubic centimeter. Preserved with thimerosal 1:10,000.

Metropolitan Laboratories, Inc., Oyster Bay, N. Y.

Aqueous Suspension Testosterone with Benzyl Alcohol 2%: 10 cc. vials. A suspension containing 10, 25, 50 or 100 mg. of testosterone in each cubic centimeter.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

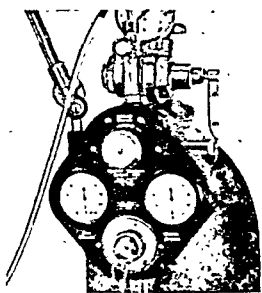
The following additional product has been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

Bennett Pressure Breathing Therapy Unit, Model TV-2P

V. Ray Bennett and Associates, Inc., 320 S. Robertson Blvd., Los Angeles 48, Calif.

The Bennett Pressure Breathing Therapy Unit delivers oxygen under positive pressure to a patient but stops the flow when the pulmonary inflation reaches the point of diminished flow; in other words, it is said to be "flow-sensitive." When it is connected to a patient, a slight inspiratory effort on his part, which creates a very slight initial negative pressure of usually less than 1 cm. H₂O, starts the flow of oxygen into his airways. The pressure then builds up to that set by the control pressure adjustment, and the flow continues at whatever rate the lungs are expanding. The unit will continue to maintain this inspiratory phase until the flow rate is reduced to approximately one or two liters per minute or until the flow direction is reversed. This apparatus therefore differs from the "pressure-sensitive" regulators in which the flow continues until inflation results in a specified back-pressure.



Bennett Pressure Breathing Therapy Unit, Model TV-2P

The essential part about which the apparatus is built is the flow-sensitive Bennett valve, which is to be attached to a cylinder of compressed oxygen. The standard accessories are a mask, mask harness, test lung (a bag of about one liter capacity), nebulizer, wrench, screw driver, cleaning brush, and instruction manual. These are included in the shipping weight, which is 7.7 kg. (17 lb.). A carrying case is optional but the "Flex Arm" to support the connections is a standard part of the unit. Packed for ship-

ment the standard equipment makes a package measuring 26 by 55 by 25 cm. (10½ by 22 by 10 in.).

From sources acceptable to the Council evidence was obtained indicating that the apparatus was well made, that it worked as represented by the manufacturer, and that it was useful in the treatment of certain types of dyspnea and apnea and in the administration of aerosol therapy.

The Council on Physical Medicine and Rehabilitation voted to include the Bennett Pressure Breathing Therapy Unit, Model TV-2P with the stipulation that its use be limited to medical treatments under the direction of a qualified physician.

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.

AN APPRECIATION

The Council on Physical Medicine and Rehabilitation expresses its gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during 1953: Drs. Thomas D. Allen, Morton Andelman, Thomas L. Ball, Robert W. Benson, Conrad Berens, Theodore B. Bernstein, William Bierman, Edward Bigg, Lester Blum, Ben L. Boynton, Rowine Brown, Raymond Carhart, Mrs. Eva Thompson

Carson, Drs. Milton B. Cole, H. G. Davis, Jr., G. deTakats, Donald J. Erickson, David C. Fainer, Alan R. Feinberg, Theodore Friedemann, T. C. Galloway, Clarence J. Gamble, Aram Glorig, Stacy R. Guild, William F. Hamilton, Opal E. Hepler, John S. Hibben, Howard P. House, John W. Huffman, I. F. Hummon, Ernest E. Irons, V. J. Jacey, Richard P. Jahn, Martin H. Kalser, Mary Karp, M. E. Knapp, A. B. C. Knudson, M. M. Kunde, Edward H. Lambert, Ludwig G. Lederer, Alfred Lewy, Edward M. Litin, Douglas Macfarlan, Robert P. MacFate, Raymond W. McNealy, Sedgwick Mead, C. O. Molander, Fred B. Moor, Lester A. Nalefski, Elliot V. Newman, Louis B. Newman, Benjamin H. Orndoff, Mr. H. W. Pavela, Drs. L. W. Peterson, Gerald H. Pratt, James W. Rae, Mr. Luther G. Ramer, Drs. Arthur A. Rodriguez, Max S. Sadove, Oscar A. Sander, D. E. Sanders, Robert S. Schwab, Martin H. Seifert, John K. Sokol, Ralph W. Taraba, Vernon C. Turner, Albert Vanderkloot, H. O. Wernicke, Jessie Wright, and Mr. L. D. Williams.

The following persons have rendered valuable services as members of Advisory Committees:

American Health Resorts.—Drs. F. A. Hellebrandt, M. B. Jarman, Walter S. McClellan, and Euclid M. Smith.

Artificial Limbs.—Drs. Rufus H. Alldredge, Henry H. Kessler, Paul E. Klopsteg, and Eugene E. Record and Messrs. Chester Haddan and J. B. Korraday.

Audiometers and Hearing Aids.—Drs. Richard K. Cook, Kenneth M. Day, Harvey Fletcher, Edmund P. Fowler, Gordon D. Hoople, M. H. Lurie, C. Stewart Nash, and S. Richard Silverman.

Education.—Drs. Robert L. Bennett, Jr., Earl C. Elkins, H. Worley Kendell, Frederic J. Kottke, Donald L. Rose, and Walter M. Solomon.

Electrocardiographs.—Drs. George Fahr, Harold Feil, Harold E. B. Pardee, and William D. Stroud.

Electroencephalography.—Drs. P. Bailey, Edward J. Baldes, Hallowell Davis, Frederic A. Gibbs, Franc D. Ingraham, and Herbert H. Jasper.

Ionizing Radiations.—Drs. Richard Hall Chamberlain, Edwin C. Ernst, E. R. Newell, and Edith H. Quimby and Lauriston S. Taylor.

Ophthalmic Devices.—Drs. David G. Cogan, William F. Hughes, Jr., K. N. Ogle, W. C. Owens, and K. C. Swan.

Respirators.—Drs. Edward L. Compere, Archer S. Gordon, William T. Green, Warren E. Wheeler, James L. Whittenberger, and James L. Wilson.

Sterility and Fertility.—Drs. William J. Dieckmann, Walter J. Meek, and Pendleton Tompkins and Mr. R. R. Olin.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following product has been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Prince Macaroni Manufacturing Company, Lowell, Mass.

Spinach Pastina

Ingredients: Fancy durum wheat flour, dehydrated spinach, thiamine, riboflavin, niacin, and iron phosphate.

Analysis (submitted by manufacturer).—Total solids 89.5%, moisture 10.5%, ash 1.22%, fat 1.68%, protein (N × 5.7) 12.9%, crude fiber 0.55%, and carbohydrates other than crude fiber (by difference) 73.12%.

Vitamins and Minerals	Mg. per Hundred Grams
Thiamine.....	0.9
Riboflavin.....	0.4
Niacin.....	5.9
Calcium.....	63
Phosphorus.....	173
Iron.....	4.8

Calories.—3.7 per gram; 105 per ounce.

Use.—In the feeding of infants and older children.

THE JOURNAL

OF THE AMERICAN MEDICAL ASSOCIATION

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BUILDING THE PROGRAM FOR THE SCIENTIFIC ASSEMBLY

Few members of the American Medical Association who have not had experience in planning programs for large scientific meetings, such as are provided each year at the A. M. A. Annual Meeting in June, are fully cognizant of the time factor essential in the organization of a successful scientific session. Over a long period of years, the Council on Scientific Assembly, which has charge of the program, has evolved with the aid of the Director of Scientific Exhibits, the Secretary of the American Medical Association, and other personnel at the headquarters office in Chicago, a time schedule necessary for the smooth functioning of a somewhat complicated evolutionary process.

Plans for the Annual Meeting usually begin a year in advance, at which time new officers of the various sections are elected or old officers retain their posts. By September the secretary of each section begins to think in terms of the program for the following June meeting, and subjects for consideration are accepted by him from the members of the American Medical Association as early as Labor Day. By mid-October the general outline of a section program is usually well advanced, and at that time the section secretary, and sometimes the section representatives to the Scientific Exhibit, meet in Chicago with the Council on Scientific Assembly and the Director of the Scientific Exhibit and his staff, to consider the program as a whole. Each secretary presents to the Council and to his brother secretaries an outline of his proposed program. At that time, joint meetings are usually arranged and panel discussions or symposiums are given consideration.

More active work on the program takes place between mid-October and mid-December, so that, soon after the first of the year, a secretary ordinarily has his program practically complete. The final arrangements are undertaken during the month of January and the first two weeks of February, the closing date usually being set for February 15. To many members of the American Medical Association this date, four months in advance of the Annual Meeting, seems early, but it is necessary to adhere to it so that the preliminary program can be submitted for publication in THE JOURNAL about April 10. At the same time, the chairman of the Council on Scientific Assembly, with the assistance of the mem-

bers, makes up the program for the General Scientific Meeting. This ordinarily consists of nine presentations by invitation, the aim being to present to the members of the American Medical Association as a whole a summary of the current advances in medicine by the leaders of the profession. This program too is completed by February 15, so that it may also appear in the Convention Number of THE JOURNAL.

It is frequently desirable to combine a paper presented at a section meeting or before the General Scientific Meeting with an exhibit on the same subject in the Scientific Exhibit. The time relation for applications for space in the Scientific Exhibit is about the same as for papers to be read in the Scientific Assembly. Application forms for requirements must be filed with the Director of Scientific Exhibits at A. M. A. headquarters early in January. Prior to that time, it is also desirable for a member wishing to arrange an exhibit to consult with the section representative, so that exhibits may be coordinated with others on similar subjects and assigned to the appropriate section.

The essential basis for good scientific assembly at an Annual Meeting depends on the coordination between the General Scientific Meeting program; the section program; the Scientific Exhibit; the motion pictures; the presentations associated with exhibits, such as those given in relation to fractures, diabetes, or other aspects of medicine; and more recently the color television program, which has become such an indispensable part of the Scientific Assembly. To coordinate all this requires a continual overseeing the year round by the Council on Scientific Assembly, which also has under its jurisdiction the program for the Clinical Meeting held each December.

The Clinical Meeting presents programming problems of a different type. There are no section meetings and no General Scientific Session similar to those held at the annual meeting. There are, however, Scientific Exhibits, motion pictures, and color television. The program ordinarily consists of a series of clinical presentations to small groups, and the arrangements for its details fall largely on the chairman of the local committee on arrangements and on the chairman of the local program committee. The chairman of the local committee on arrangements, selected locally, is appointed by the Board of Trustees prior to the time of the Clinical Meeting occurring a year in advance of the one in which he is to take charge. This is done so he can attend that meeting and confer with the previous chairman of the local committee on arrangements and with the members of the Council on Scientific Assembly. Thus, from year to year a continuity of effort is established that leads to continued improvement in the character of the Clinical Meeting. Because of the nature of the program and the particular knowledge that the local chairman is likely to have about his own city and the general area where the meeting is to be held, most of the speakers are invited to participate rather than being chosen from applications from the general membership of the American Medical Association. Such applications, however, may be made to the chairman of the local committee on arrangements for the consideration of his program committee. These should be in his hands by May of the year in which the meeting is to be held, so that they can be given considera-

tion when the Council on Scientific Assembly meets with the chairman of the local committee in that month. The same time schedule, moreover, applies to applications for the Scientific Exhibit.

EMPLOYMENT FOR DIABETICS

The American Diabetes Association has emphasized its philosophy that a controlled diabetic is a good employment risk. Also, by virtue of his capability of performing a full day's work satisfactorily despite his disease, the diabetic should not be classed with the physically handicapped. During the past five years, the association, through its committee on employment, has endeavored to reach some unanimity of opinion in the formulation of recommendations to labor and management regarding the industrial utilization of the diabetic.¹ The structure of the committee is of interest, for extramural members were sought from the United States Civil Service Commission, the United Mine Workers of America, the Industrial Hygiene Foundation, and the diabetes section of the Public Health Service. There was additional contact with the Office of Vocational Rehabilitation of the Federal Security Agency and with the Association of Railroad Engineers.

Mildly diabetic persons, in no need of insulin, present no employment problem. Of persons with severe diabetes, with both insulin and regulated-diet needs, there is the well-controlled and well-regulated patient and the uncooperative and poorly regulated patient. The latter, if hired, would prejudice employers against all diabetics, for they not only are poor work risks because of their diabetes but are potential absentees in the light of complications to come. The well-controlled diabetic has proved his worth and his employment stability in hundreds of organizations employing such persons. Standards suggested by the committee for both employers and prospective workers with diabetes, in essence, are these: 1. A diabetic seeking employment should present a note from his physician stating that he is controlled and undergoes periodic examinations. 2. Diabetics can perform any work for which they are equipped physically, mentally, and educationally. Those taking insulin in large doses should not be assigned to work wherein hypoglycemic attacks would injure either them or others. 3. Diabetics should work straight shifts (unbroken and nonrotating). If a rotating shift is necessary, they should avoid the midnight to 8 a. m. schedule. This is the only concession in terms of hours that a well-controlled diabetic should ask. 4. Certain key personnel in a plant employing diabetics should be familiar with the nature of diabetes and the possibility of coma or insulin reactions. 5. Diabetics should carry cards or tags identifying their condition. 6. The plant physician, in cooperation with the diabetic employee's family physician, should perform periodic blood and urine examinations, if the patient's work schedule precludes visiting his regular laboratory facilities. 7. Each diabetic should have a complete annual physical examination. 8. Transfer or reassignment of a diabetic at the request of the plant physician, when new complications create new risks, is a justified procedure. 9. An insulin-requiring diabetic is considered controlled if his fasting blood sugar is not below normal limits and not over 150

mg. per 100 cc. (Folin-Wu method), if the level after a meal is not higher than 250 mg. per 100 cc., and if he is under regular medical supervision.

It is to be pointed out that excellent liaison has been established by the committee at the national level with the Congress of Industrial Organizations, the American Federation of Labor, and the Railroad Brotherhoods. If necessary this cooperation can be extended downward. With these employment standards in realistic usage by employers and personnel directors, the diabetic applicant should be considered just as eligible for work as the nondiabetic candidate. His effective contribution to industry has been demonstrated, and with continuing co-operative efforts among labor, employers, and professional groups toward hiring the diabetic, employment prejudice will continue to abate.

ILLEGAL OPERATION OF MEDICAL DIATHERMY APPARATUS

The Federal Communications Commission which renders great public service, released recently an interesting and timely public notice, which is of great importance to many physicians. It points out the hazards involved in the illegal operation of medical diathermy apparatus now in use. An abstract of this public notice appears elsewhere (page 1026) in this issue of THE JOURNAL. The commission has set forth the very important reasons for its 1947 ruling, which assigned certain specific frequencies for the exclusive use of medical and industrial diathermy equipment and which gave users of such equipment until June 30, 1952, to acquire apparatus that conformed to the commission's rules. In 1952, the Council on Physical Medicine and Rehabilitation of the American Medical Association petitioned the commission to extend this time limit. The commission did extend the deadline until June 30, 1953, thus giving users a total of six years to comply.

FCC type-approved medical diathermy apparatus manufactured since 1947 is designed to minimize interference with radio communications for home reception, police and fire departments, airlines, airplane landing systems, radio-directed missiles, and television. Excessive radiation from nonconforming diathermy apparatus could be used by enemy aircraft as a navigation aid in flying to target areas in the United States.

Articles in the Council on Physical Medicine and Rehabilitation columns and other articles published in THE JOURNAL since 1947 have called the profession's attention to FCC rules for medical diathermy apparatus. Users of nonconforming medical diathermy apparatus are urged once again to acquire apparatus that can be legally operated. For the information of the profession, the Council on Physical Medicine and Rehabilitation can provide a list of Council-accepted medical diathermy apparatus. This is an extremely important problem requiring the cooperation and understanding of all interested parties, particularly those persons who are using medical diathermy machines not meeting the requirements of the commission.

1. Employment of Diabetics: Statement of the Committee on Employment, American Diabetes Association, July, 1952, *Diabetes* 1: 336 (July-Aug.) 1952. Beardwood, J. T., Jr.: Employment [of Diabetics], *ibid.* 2: 334 (July-Aug.) 1953.

ORGANIZATION SECTION

TEXAS MEDICAL ASSOCIATION

The Texas Medical Association, which in September, 1952, celebrated its approaching centennial with the dedication of its new memorial library and headquarters building in Austin, was founded Jan. 17, 1853. The 35 physicians who assembled in response to the call "To all regular authorized Physicians of the State of Texas" adopted a constitution and bylaws that included provision for the formation of subordinate societies, the first of which, the Bexar County Medical Society, was chartered in September of that year. After the second assembly of the state association, Nov. 14, 1853, there is an unexplained period in which no meetings were held until 1869 when at a meeting in Houston the body was reorganized as the Texas State Medical Association. In April, 1901, a new charter was issued in the name of the State Medical Association of Texas, a title that was retained until 1951, when the original appellation was resumed.

The headquarters, too, changed frequently through the years, the first building to house offices of the association being the Fort Worth National Bank Building, where headquarters were maintained until 1910. There followed a succession of rented "homes" in the Continental Bank Building, the Western National Bank Building, the Newby Building, and the Medical Arts Building until 1935, when the residence at 1404 West El Paso Street was



Texas Medical Association memorial library and headquarters.

purchased for the central office. In 1948, headquarters were transferred to Austin, where a three story Victorian residence was leased at 700 Guadalupe Street.

The present site at Lamar Boulevard and 19th Street was given to the association by the Travis County Medical Society, and a bequest of \$50,000 provided for in an irrevocable trust by Dr. and Mrs. Sam E. Thompson of Kerrville assured the association of the necessary funds for building and operating the library. The auditorium-lounge of the new central office and library building have been named in honor of Dr. Thompson, an emeritus member, who served the state association as president, as member and for 10 years chairman of its board of trustees, and as its delegate to the American Medical Association for 12 years. The Sam Thompson lounge-auditorium, with a seating capacity of 300, in which executive council and other conferences are held, and the library occupy the first floor of the granite-trimmed limestone structure. The library, which has more than 22,000 bound and unbound items, maintains a package service including about 375 periodicals, 7,000 books, 156,000 reprints, 150 professional films, and 50 films suitable for lay audiences. The second floor houses the offices for executive, business, medical services, and public relations activities, as well as those of the state advisory committee, the woman's auxiliary, and the *Texas State Journal of Medicine*, which was founded in July, 1905. Complimentary subscriptions are being provided for senior students of the medical colleges in Texas, at which the association also sponsors lectures and special Medical Students' Days. For graduates of these schools, as well as for other physicians, the association maintains an active placement service, and in furtherance of post-graduate education relays a series of panel discussions by telephone to country medical societies and hospital staffs throughout the state.

The association has long been active in sponsoring medical legislation. In 1907, through the efforts of its legislative committee, the one board medical practice act became a law. In 1917 the vital statistics bill was helped through the legislature, and a more effective workmen's compensation act was passed. Ten years later the association sponsored (1) an amendment to the medical practice act that empowered the board of medical examiners to require the annual registration of all the physicians of Texas and to collect an annual fee of \$2 and (2) a bill for reorganization of the state board of health. Still later a minimum standards bill was obtained.

The association has a membership of almost 6,700 physicians. Its woman's auxiliary, which, founded in 1918, was instrumental in establishing an auxiliary in the American Medical Association in 1922, numbers about 4,500 members, whose annual meeting is concurrent with that of the state association. The annual sessions rotate among Dallas, Fort Worth, Galveston, Houston, and San Antonio, where the convention will be held this year May 3-5 under the presidency of Dr. George Turner, El Paso. Other officers of the association include: Dr. Francis J. L. Blasingame, Wharton, president-elect; Dr. Andrew S. Tomb, Victoria, vice-president; Dr. John M. Travis, Jacksonville, secretary; Dr. Thomas H. Thomson, Fort Worth, treasurer; and Mr. N. C. Forrester, executive secretary. The chronicle of the association has been recorded by Dr. Patrick I. Nixon of San Antonio in a 476 page volume "A History of the Texas Medical Association, 1853-1953," which was authorized by the board of trustees in observation of the centennial jubilee.

COUNCIL ON INDUSTRIAL HEALTH

Dr. William P. Shepard, New York, second vice-president, health and welfare division, Metropolitan Life Insurance Company, has been elected chairman of the American Medical Association's Council on Industrial Health. Dr. Shepard succeeds Dr. Anthony J. Lanza, New York, director of the Institute of Industrial Medicine, New York University-Bellevue Medical Center. Two new members of the council also have been elected: Dr. Lemuel C. McGee, Wilmington, Del., medical director, Hercules Powder Company, and Dr. Charles F. Shook, Toledo, Ohio, medical director, Owens-Illinois Glass Company. They succeed Dr. Lanza and Dr. Clarence D. Selby, Port Huron, Mich., whose terms have expired.

The presentation of two American Medical Association citations for distinguished service in the field of industrial health was made at the meeting. The awards went to Dr. Anthony J. Lanza and Dr. Clarence D. Selby, Port Huron, Mich., former medical consultant to the General Motors Corporation, Detroit. Announcement of the citations, the first in the field of industrial health, was made by Dr. George F. Lull, Chicago, Secretary and General Manager of the American Medical Association. Drs. Lanza and Selby have been leaders in the movement for better health conditions among workers.

STUDENTS' ANNUAL CONVENTION MAY 1-3 IN CHICAGO

The Student American Medical Association's fourth annual convention, May 1-3 at the Sherman Hotel, Chicago, will offer a program of panel discussions, speakers, and exhibits. Highlights include a scientific paper, "On Becoming a Physician," by Detroit psychiatrist Leo H. Bartemeier, M.D.; a roundtable discussion entitled, "Tell me, Dean," moderated by John F. Sheehan, M.D., dean of Stritch School of Medicine, Chicago, and a forum, "The Future of Internships." The house of delegates, official policy-making body of the association, will be in session May 1 and 3, with Sunday, May 2, to be devoted to the program proper. Members of SAMA and physicians are cordially invited.

MORE "MARCH OF MEDICINE" TV SHOWS

Of interest to physicians and patients afflicted with arthritis or rheumatism is the second in the spring, 1954, series of "March of Medicine" television programs. Sponsored by Smith, Kline and French Laboratories in cooperation with the American Medical Association, "A Status Report on Arthritis and Rheumatism" will be carried April 29 over the National Broadcasting Company's TV network. The third program in the series, on June 24, will originate from the A. M. A.'s annual meeting in San Francisco. Like last year's series, the new "March of Medicine" programs will be presented at 10 p. m. (EST); it will replace the "Martin Kane" show, which is usually seen at that hour.

AUDIO-DIGEST PROFITS GO TO MEDICAL SCHOOLS

The American Medical Education Foundation recently announced that a new source of funds now is available to medical schools through physician-support of the Audio-Digest Foundation. For a nominal weekly subscription fee, physicians receive from the Audio-Digest Foundation tape-recorded abstracts of current literature and lectures culled from current medical periodicals in all fields of medicine. This foundation, organized by the California Medical Association, will turn over its profits to the AMEF. This should boost the AMEF's 1954 campaign drive for funds from the medical profession to assist the country's 79 approved medical schools.

FEDERAL MEDICAL LEGISLATION

National Fund for Medical Education

Congressman Poff (R., Va.) in H. R. 7914, a companion bill to S. 1748 by the late Senator Taft, would give a federal character to the National Fund for Medical Education. The Poff measure differs from the Taft bill in only minor details, such as limiting the number of trustees to 17 and requiring that 4 of these be physicians. It specifies also that the contributions can be raised only from private sources. This measure was referred to the Committee on the Judiciary, which has already held a hearing thereon.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 294, proposes regulations for the compulsory isolation and hospitalization of persons infected with tuberculosis. H. 295, proposes the creation of a division of tuberculosis control, the director of which shall be a physician licensed by the state of Arizona who has had not less than five years' experience in the control of tuberculosis. H. 307, proposes the creation of an Arizona bureau of narcotics enforcement to coordinate the activities of law enforcement officers and of state agencies in the enforcement of the narcotics act. S. 104, proposes regulations for the creation of hospital districts.

Bill Enacted.—S. 42, has become Chapter 6 of the Laws of 1954. It provides that any person who may otherwise validly make a will may, by will or other written, signed, and acknowledged instruments, dispose of the whole or any part of his body to a teaching institution, university, college, state department of health, facility designated or maintained by the anatomy board of Arizona, legally licensed hospital, any other agency or commission operating a tissue, eye, bone, cartilage, or blood bank, or any other bank of a similar kind designated for the purposes of medical science and the rehabilitation of the maimed.

Kentucky

Bills Introduced.—H. 401, proposes regulations for the effective control of the spread of communicable tuberculosis. H. 139, proposes regulations relating to the control of rabies. H. 409, proposes the creation of a department of the handicapped to exercise all functions of the state relating to the diagnosis, treatment, education, institutional care, vocational guidance, and placement and research for handicapped persons. The commissioner of this department would be required to be a qualified physician licensed to practice in the state with five years' experience in the field of public health administration.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

Massachusetts

Bills Introduced.—H. 2479, proposes to authorize the construction of hospitals for use as homes or hospitals for aging persons who are not mentally ill. H. 2495, proposes that in any proceeding to establish paternity the trial court, on motion of the defendant, shall order the mother, her child, and the defendant to submit to one or more blood grouping tests, to be made by a duly qualified physician or other duly qualified persons designated by the court, to determine whether the defendant can be excluded as being the father of the child, and the results of such tests shall be admissible in evidence in cases where definite exclusion is established.

Mississippi

Bills Introduced.—H. 615, proposes to require licenses issued by the board of health before any person may engage in selling, distributing, or marketing instruments or devices designed for or represented as aiding, improving, or correcting defective hearing. H. 634, proposes regulations for the control of rabies. H. 656, proposes the creation of a cancer committee to serve with the state hospital commission, whose duty it shall be to decide in which cases operating room and/or blood transfusion fees shall be paid and the amount thereof. S. 1517, proposes to require both applicants for a marriage license to present a medical certificate indicating that the parties have submitted to a standard serologic test or tests for syphilis.

New York

Bills Introduced.—A.R. 120, proposes to direct the joint legislative committee to inquire into and make a thorough, complete, and careful study of the admission practices of the medical schools of the city and state of New York to determine if such admission practice results in discrimination against applicants by reason of race, creed, color, or national origin. A. 2555, proposes the creation of a temporary commission to study the needs of children and youth and to recommend a program to meet those needs. A. 2673 and S. 2690, propose the creation of a board of bioanalytical examiners and proposes that a person practices analytical technology who holds himself out as being able to perform or who performs or supervises others in performing any bacteriological, biochemical, microscopic, serologic, parasitological, and/or other tests by the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment, and methods for the purpose of making scientific investigations, the results of which, when reported to a physician, osteopath, dentist, or podiatrist, may be used as an aid to ascertain the state of health. A. 2792, proposes the creation of a temporary commission to make a study and survey in reference to recommending legislation providing for the licensing of all those except medical doctors who prescribe or sell hearing aids. A. 2800, to amend the education law, proposes to define the word "physician" as including a practitioner of either osteopathy or naturopathy. A. 2832, to amend the social welfare law, proposes that no certificate of incorporation shall be filed that includes among its corporate purposes the operation of private proprietary hospitals, nursing homes, infirmaries, homes or institutions for convalescents, aged, or indigent persons, and lying-in homes operated for profit except with the written approval of the board and a justice of the supreme court. A. 3040 and S. 2452, propose the creation of a state board of massotherapists examiners and defines the practice of massage as a scientific system of applied activity of the muscular structures of the human body, by the means of stroking, kneading, tapping, and vibrating of such structures with the hands for the cardinal purpose of improving the circulation. It excludes the reduction of fractures or dislocations of the bones. A. 2856 and S. 2505, propose that every hospital supported in whole or in part by public funds or the solicitation of private subscriptions and to which patients are submitted on payment of a charge or fee or at which persons receive medical and/or surgical treatment on payment of a charge or fee may employ physicians and surgeons under a contract or salary arrangement for the medical diagnosis and/or treatment of patients only when such diagnosis and treatment is a public charge. In all other cases such medical diagnosis and/or treatment shall be rendered to patients in such hospital independently of other hospital charges and under contractual relationship between the patient and the physician. A. 2973, to amend the traffic law relating to the withdrawal of blood for the purpose of determining the alcoholic content therein, proposes that physicians shall not be liable for damages in any civil suit for withdrawing such blood except for gross negligence in the performance of such withdrawal. S. 2694, to amend the public health law, proposes circumstances under which a city health department may secure qualified full-time physicians for service during an emergency, even though such physicians are not citizens of the United States.

Rhode Island

Bill Introduced.—H. 748, proposes that no general release or settlement in writing signed by a person confined in a hospital shall be admissible in evidence in a trial or action to recover damages for personal injuries necessitating the hospitalization if the statement was obtained within fifteen days after the injuries except under certain specified circumstances.

Virginia

Bill Enacted.—S.J.R. 18, was adopted Feb. 10, 1954. It directs the Virginia Advisory Legislative Council to study the desirability and feasibility of providing specially designed geriatric facilities for the care of aged patients.

MEDICAL NEWS

CALIFORNIA

Medical Tour of Europe.—The California Medical Association has arranged its first annual grand medical tour of Europe, April 5-May 5. The itinerary provides for about one week in France and one in Italy, three days in England, three in Holland, two in Switzerland, and one in Belgium. Medical meetings are scheduled for Paris, Rome, Lucerne, and London. The total cost of the tour is \$1,788 (plus \$45.29 tax). Members' wives and children under 22 will receive the benefit of a family plan reduction. The party will leave San Francisco or Los Angeles by United Air Lines DC-6B Mainliner, April 5, arriving in New York the same evening and leaving the following day for Paris. On the return trip, arrival is scheduled for New York at noon, May 4, and departure for California the following day. Information may be obtained from the California Medical Association, 450 Sutter St., San Francisco 8.

ILLINOIS

Dr. Windle Goes to Maryland.—William F. Windle, Ph.D., scientific director of the Baxter Laboratories, Morton Grove, has been appointed chief of the Laboratory of Neuroanatomical Sciences of the National Institute of Neurological Diseases and Blindness, where he will continue his investigations into the problems of nerve regeneration. Dr. Windle previously served as chairman of the department of anatomy of the University of Pennsylvania, Philadelphia, and at the University of Washington, Seattle, and as director of the Institute of Neurology at Northwestern University, Chicago. He has held the Harvey lectureship, the War-Navy award, and the Sesquicentennial medal of the University of Louisville.

Chicago

Personal.—At the meeting of the Society of Illinois Bacteriologists, Feb. 27, Dr. Tibor Benedek, assistant clinical professor of dermatology and syphilology, Stritch School of Medicine of Loyola University, delivered a paper on the *Bacillus endoparasiticus* Benedek 1927. —Dr. Benjamin M. Gasul will present before the Memphis Heart Association "Advances in Pediatric Cardiology" March 22 and will hold a clinic the following morning.

Northwestern's New Medical Research Building.—According to J. Roscoe Miller, M.D., president of Northwestern University, construction of the seven-story Morton Medical Research Building was begun in February at 310 E. Superior St. on the Chicago campus. The new building will be financed by a 2 million dollar bequest left to the university by Mrs. Margaret Gray Morton, and it will be connected with a wing of the Ward building. A special feature will be movable metal wall partitions that can be set up at any 10-foot interval within the building, allowing laboratories to be converted at a moment's notice to almost any size desired. Fourteen specially designed chemical hoods for experiments with noxious fumes will be built. An electrical power supply of 576,000 watts will be conducted in a bus duct system unusual in a research building, and a continuous run of copper bars for conducting electricity will be constructed in all corridors of the building. Switches can be attached at any 1-foot interval along the bars to provide power at almost any point in the building.

KANSAS

Clendening Lectures.—Dr. Douglas Guthrie, lecturer in the history of medicine at the University of Edinburgh in Scotland, will be the Clendening memorial lecturer March 24-25. On Wednesday, 11 a. m., at the University of Kansas School of Medicine, Lawrence, his topic will be "Witchcraft and Witch Doctors." In

the evening Dr. Guthrie will speak in the Library of the History of Medicine at 8 p. m. The lecture at the University of Kansas School of Medicine, Kansas City, at 12 noon the following day will be "Lister and His Achievement." Physicians and students are invited.

MAINE

Clinics to Be Held.—Pediatric clinics are scheduled to be held at the Northern Maine Sanatorium, Presque Isle, March 24, 1:30 p. m., and at the Eastern Maine General Hospital in Bangor March 26, 1:30 p. m. A tumor clinic has been scheduled at the latter hospital March 25, 1:30-3 p. m., and a cardiac clinic, March 26, 9 a. m. to 12 noon.

Society News.—At a recent meeting of the Maine Society of Anesthesiologists the following officers were elected: Dr. George E. Sullivan, Bingham, president; Dr. Valentine J. Moore, Waterville, vice-president; and Dr. John R. Lincoln, Portland, secretary-treasurer. —The Maine Society of Radiologists recently elected the following officers: Dr. John Southworth, Togus, president; Dr. Clark F. Miller, Lewiston, vice-president; Dr. Jack Spencer, Portland, secretary-treasurer; and Dr. Forrest B. Aimes, Bangor, councilor to the American College of Radiology.

MARYLAND

Cancer Lecture.—Under the sponsorship of the house staff of Sinai Hospital, Baltimore, Dr. Sidney Farber, professor of pathology, Harvard Medical School, Boston, will deliver the Dr. Jack W. Kolson memorial lecture, "Approaches to the Chemotherapy of Cancer," March 25, 8:30 p. m. in Hurd Hall, Johns Hopkins Hospital, Baltimore. Physicians, medical students, and those in allied fields are invited.

MASSACHUSETTS

Dr. Rhoads to Lecture on Neoplastic Diseases.—The Alpha Theta chapter of the Phi Delta Epsilon fraternity at Tufts College Medical School, Boston, will hold the seventh annual lectureship March 22. The guest speaker will be Dr. Cornelius P. Rhoads, Sloan Kettering Institute, Memorial Center for Cancer and Allied Diseases, New York, who will discuss "Advances in the Treatment of Neoplastic Diseases."

Symposium on Poliomyelitis.—Dr. Charles A. Janeway, Boston, will serve as moderator for the following program of the Norfolk District Medical Society, March 23, 8:15 p. m. in the Jimmy Fund Building Auditorium, Children's Medical Center, 35 Binney St., Boston:

- Louis Weinstein, Boston, Diagnosis of Acute Poliomyelitis.
- R. Cannon Eley, Boston, Treatment of the Usual Case.
- Bertrand C. Kriete, Boston, Recognition and Management of Dangerous Complications of the Acute Disease.
- Thomas H. Weller, Boston, Poliomyelitis Viruses and Vaccines.
- Roy F. Feemster, Boston, Present Status of Methods of Prevention and Control.

Course on Measurement of Pulmonary Function.—A course in the measurement of pulmonary function in health and disease will be held for physicians in the New England area at Boston City Hospital, March 22-26 under the sponsorship of the American Trudeau Society, in cooperation with the Massachusetts Tuberculosis and Health League, Harvard Medical School, Boston University School of Medicine, and Tufts College Medical School. The course will present the fundamental concepts and methods of analysis of normal and abnormal physiology of the lungs in a manner that can be readily understood by physicians unfamiliar with this type of chest work. Information may be obtained from Dr. Edward J. Welch, chairman, ATS Regional Committee on Postgraduate Courses, 1101 Beacon St., Brookline 46.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MINNESOTA

George E. Fahr Lecture.—The annual George E. Fahr lecture, "Some Pitfalls in the Care of Cardiacs," will be given March 23 in Owre Amphitheater on the University of Minnesota campus in Minneapolis by Dr. Samuel A. Levine, clinical professor, Harvard Medical School, Boston. Dr. Levine will also participate in the continuation course in cardiovascular diseases which will be held March 22 to 24 at the Center for Continuation Study.

Dr. Ulrich Honored.—The Hennepin County Tuberculosis Association, which on Dec. 2, 1953, observed the half-century mark in its "building of the wall" against tuberculosis, presented to Dr. Henry L. Ulrich, Minneapolis, a plaque in recognition of his many years of work toward the eradication of tuberculosis. Speakers at the golden jubilee of the association, which was founded a year before the creation of the National Tuberculosis Association and two years before the Minnesota state association, included Drs. S. Marx White, Walter J. Marcle, and Stewart C. Thomson, Minneapolis.

NEW JERSEY

Medicolegal Meeting.—The New Jersey Neuropsychiatric Association will hold an evening medicolegal meeting at the Academy of Medicine, Newark, March 24. The Briggs law and its relationship to psychiatric testimony will be discussed. Members of the medical and legal professions are invited.

Personal.—Dr. Samuel Cohen was recently appointed director of medicine at the Berthold S. Pollak Hospital for Chest Diseases, Jersey City. —Dr. Richard H. Roberts, Summit, has assumed the position, newly created by Ciba Pharmaceutical Products, of senior clinical research associate on the West Coast, where his address is 417 Market St., San Francisco.

NEW YORK

Cancer Program.—A cancer teaching day will be held March 25, 9 a. m. to 5 p. m., at Albany Medical College under the sponsorship of the college, the Medical Society of the County of Albany, Medical Society of the State of New York, and the New York State Department of Health. The program, conducted by members of the Jefferson Medical College of Philadelphia, will be presented in two parts. In the morning "Cancer of the Bronchus" will be discussed by Drs. John H. Gibbon Jr., Peter A. Herbut, Louis H. Clerf, and Theodore P. Eberhard, and in the afternoon "Treatment of Leukemia" will be presented by Drs. Franklin R. Miller, John S. Flint, and Theodore P. Eberhard.

Buffalo Clinical Day.—The Alumni Association of the University of Buffalo School of Medicine will conduct its annual Clinical Day, March 20, at the Hotel Statler, Buffalo. Physicians are invited to attend the sessions and join in the luncheon-get-together on the same payment basis as Alumni Association members. Dr. George M. Masotti, president of the alumni association, announces the following program:

- Problems in the Resuscitation of the Newborn Infant, Richard L. Day, New York.
- Surgical Treatment of Ulcerative Colitis—A Medical and Surgical Program, Garnet W. Ault, Washington, D. C.
- Portacaval Shunting for Portal Hypertension, with Special Reference to Cirrhosis of the Liver, Arthur H. Blakemore, New York.
- Early Diagnosis of Malignant and Pre-Malignant Lesions of the Colon and Rectum, Neil W. Swinton, Boston.
- Some Pitfalls in the Care of Cardiacs, Samuel A. Levine, Boston.
- Measures in the Prevention of Maternal Morbidity and Mortality, Robert A. Ross, Chapel Hill, N. C.

New York City

Society News.—The Association for the Aid of Crippled Children has moved to 345 E. 46th St. (OXford 7-3150). —At the meeting of the Society for the Study of Blood, March 23, 8:30 p. m., at the New York Academy of Medicine, "Platelet Transfusions in the Control of Thrombocytopenic Bleeding" will be discussed by Dr. Allen H. Minor, research associate, Lennox Hill Hospital, and "Immunologic Mechanisms in Idiopathic Thrombocytopenic Purpura" by Dr. William J. Harrington, senior assistant surgeon, U. S. Public Health Service, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.

Lectures on Anesthesiology.—Modern scientific method and modern statistics with special application to anesthesiology will be presented by Dr. Philip H. Sechzer, director of anesthesiology, Fordham and Seton hospitals, and consultant, U. S. Public Health Service, Staten Island, at 1:30 p. m. March 25, April 22, and May 20 in Ward 9, auditorium, Fordham Hospital. The topics to be presented are: logic and scientific method, the meaning of statistics, how to evaluate evidence, bias and variations, enumeration data, confidence limits, chi square test, mensuration data, T test, correlation and regression, simple experiments, and factorial design. The profession is invited.

Biology Seminars.—New York University is presenting a series of graduate biology seminars open to all interested persons, at 5 p. m. on Friday evenings in NYU's Main Building, Washington Square Center. On March 19, Dr. Albert Tannenbaum, director, department of cancer research, Medical Research Institute of Michael Reese Hospital, Chicago, discussed "Nutrition in Relation to the Cancer Process," and, on March 26, George Wald, Ph.D., professor of biology, Harvard University, Cambridge, Mass., will present "The Molecular Basis of Vision." The following programs complete the schedule: April 2, John Tyler Bonner, Ph.D., associate professor of biology, Princeton University, Princeton, N. J., "Recent Studies on the Development of the Slime Mold, Dictyostelium Discoideum"; April 23, Horace W. Stunkard, Ph.D., professor of biology at New York University, "Parasitism as a Biological Phenomenon"; and April 30, James H. McGregor, Ph.D., professor emeritus of zoology at Columbia University, "Comparison of Apes and Man."

OREGON

Harmon Lectures.—The Harmon lecture series, presented annually by the Library Association of Portland, will be co-sponsored this year by the University of Oregon Medical School, Portland, making possible medical talks designed for laymen. The lectures, presided over by Dr. Daniel H. Labby, associate professor of medicine, will include: Dr. Howard P. Lewis, professor and head of the department of medicine, "Facing the Medical Problems of Aging," March 24; Dr. S. Gorham Babson, assistant clinical professor of pediatrics, "The Signs of Emotional Strain in Our Children," March 29; Dr. Roy L. Swank, professor of neurology, "Approaches to a Mysterious Disease—Multiple Sclerosis," April 8; and Dr. Joseph F. Paquet, clinical associate in medicine, "What's New in Poliomyelitis," April 21.

PENNSYLVANIA

Memorial to Dr. Laplace.—The Aid Association of the Philadelphia County Medical Society announces the establishment of the Dr. Louis B. Laplace Memorial Fund as a tribute to Dr. Laplace who died a few days before the termination of his service as a director of the association. Individual or group contributions may be sent to the Aid Association, Philadelphia County Medical Society, 21st and Spruce streets, Philadelphia 3, earmarked for the "Dr. Louis B. Laplace Memorial Fund."

Philadelphia

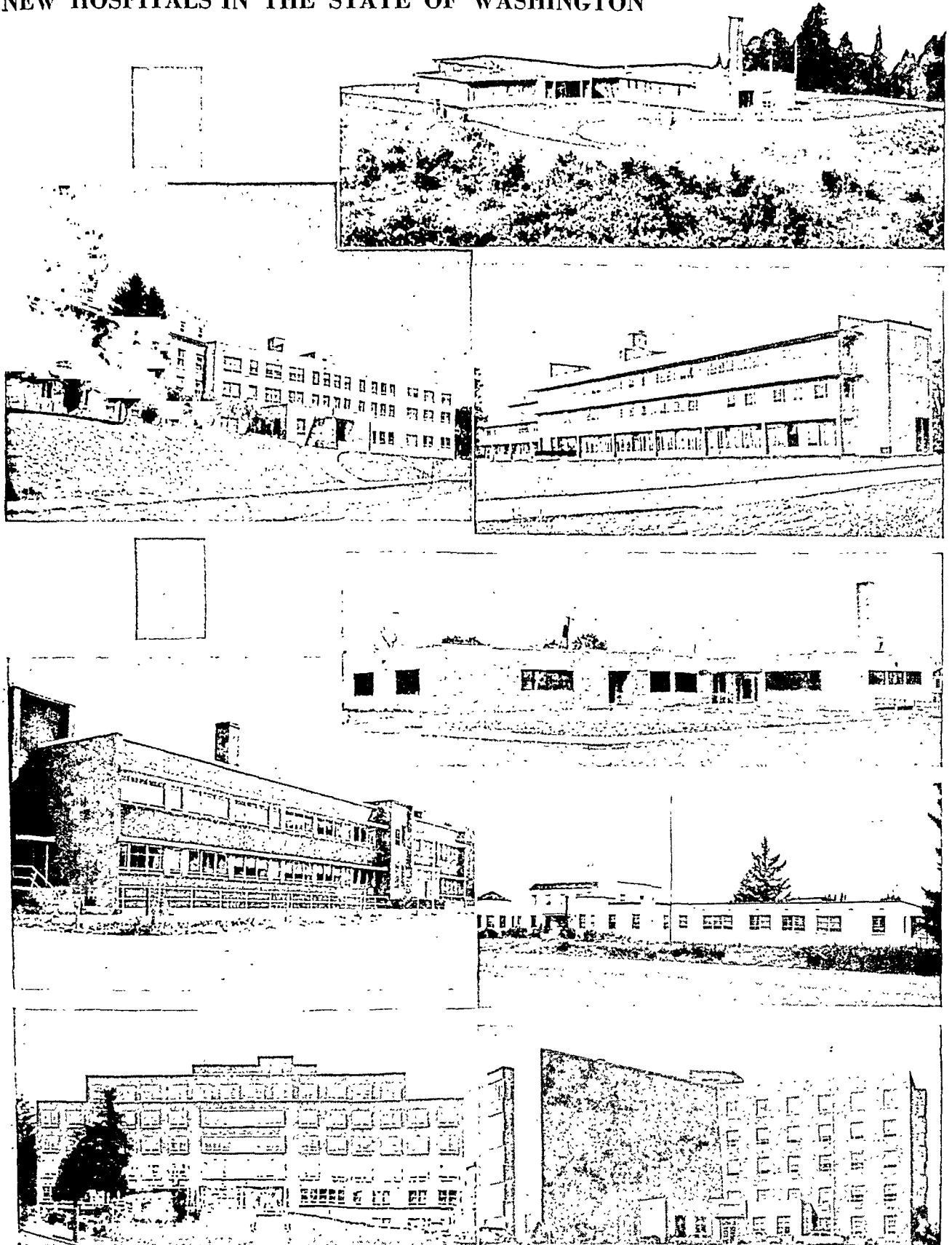
Alpha Omega Alpha Lectureship.—The Temple University chapter of Alpha Omega Alpha will present its annual lectureship March 22, 4 p. m., in the auditorium of Temple University School of Medicine, 3400 N. Broad St. Dr. Charles A. Hufnagel, professor of surgical research, Georgetown University School of Medicine, Washington, D. C., will discuss "The Reconstructive Concept in the Treatment of Diseases of Major Arteries."

VERMONT

Surgeons Meet in Montpelier.—The spring meeting of the section on surgery of the Vermont State Medical Society will be held March 25 at the Pavilion in Montpelier. Dr. Robert R. Linton, assistant professor of clinical surgery, Harvard Medical School, Boston, will discuss "New Parts for Old in the Surgical Treatment of Diseases of the Major Arteries" before the social hour which precedes the 6:30 banquet. He will also show his film "Treatment of Venous Thrombosis of the Lower Extremity." Dinner reservations are essential. Dr. Benjamin F. Clark, St. Johnsbury, is chairman of the program committee.

The Lutheran Minor Hospital for the Treatment of Chronic Illness is the first new hospital in the state to deal specifically with this problem. Located at Puyallup, adjacent to the Lutheran Home for the Aged and closely affiliated with the local general hospital, it has 76 beds and facilities for physical and occupa-

NEW HOSPITALS IN THE STATE OF WASHINGTON



Reading from top and left to right are Skyline Hospital, White Salmon; St. Helen Hospital, Chehalis; Olympic Memorial Hospital, Port Angeles; Adams County Memorial Hospital, Ritzville; St. Martin's Hospital, Tonasket; Memorial Hospital, Sedro Woolley; St. Joseph Hospital, Aberdeen; and Yakima Valley Memorial Hospital, Yakima.

tional therapy, minor surgery, and laboratory and x-ray. The Lutheran Welfare Society undertook to construct this hospital with funds raised through public subscription and mortgage loan, but, as these were insufficient, a Hill-Burton grant was approved for the purchase of equipment.

University, state, and Hill-Burton funds made possible construction of the first unit of the 300 bed University of Washington Teaching Hospital in Seattle, a clinic research unit adjoining the Health Sciences Building on the university campus. Physicians throughout the state will be able to refer patients to the outpatient clinic in this unit to receive the benefit of highly specialized studies and examinations. This structure contains a small referral diagnostic clinic for outpatients and 24 beds for inpatients, which beds will be limited to medical research purposes.

The 20 bed Adams County Memorial Hospital at Ritzville serves the large and prosperous but sparsely populated wheat farming area of eastern Washington. Constructed by the Adams County Public District no. 1 at a total cost of \$336,000, it replaces the former inadequate Ritzville General Hospital, which was housed in quarters converted from a doctors clinic and home. This new hospital has made it possible for surgeons from Spokane to serve the people of this rural area.

By the end of 1952 the construction of new facilities had added more than 1,000 beds in general hospitals, at which time the state had a total of 8,313 general hospital beds. The previously mentioned brochure states that at that time a leveling off in the need for general hospital beds appeared to have taken place partly as a result of a trend toward a shorter length of patients' stay in the hospital and "partly due to the new 'wonder' drugs that have made some use of hospitals unnecessary."

GENERAL

Eastern Surgeons Meet in Boston.—The Eastern Surgical Society will meet in Boston, March 26-27. From 8:30 a. m. until noon, operative and dry clinics will be held at the Massachusetts General Hospital on both days. On Friday after luncheon at the Massachusetts General Hospital, a program will be presented from 2 to 4 p. m. at the Peter Bent Brigham Hospital by the staff.

Areas in Need of Physicians.—Information concerning openings for general practitioners in Pennsylvania, West Virginia, and Ohio has been compiled by the area medical office of the United Mine Workers of America Welfare and Retirement Fund, Empire Building, 507 Liberty Ave., Pittsburgh. Information concerning openings in other states has been compiled by the national office and other area medical offices of the fund.

Accidental Deaths in 1953.—The National Safety Council reports that during 1953, accidents in the United States killed 95,000 persons (more than three times as great as the toll of American dead during the entire Korean war), injured 9,600,000 and cost 9 billion dollars. The 1953 accident death toll was, however, 1,000 below that of the year before, and the 1953 all-accident death rate (60 per 100,000 population) was the lowest on record.

Allergists Meet in Atlanta.—The annual meeting of the South-eastern Allergy Association will be held at the Hotel Dinkler Plaza in Atlanta, March 25-27, under the presidency of Dr. W. Lindsay Miller, Gadsden, Ala. The program will include addresses by Dr. Homer E. Prince, Houston, Texas, president-elect of the American Academy of Allergy; Dr. John M. Sheldon, Ann Arbor, Mich., president, American Academy of Allergy; Dr. Ethan Allan Brown, Boston, editor, *Annals of Allergy*; Dr. Oscar Swineford, Charlottesville, Va., past president of the American Academy of Allergy; and Albert S. Richardson, Ph.D., associate director of the chemical division of Proctor and Gamble, Cincinnati.

Symposium on Drug Resistance.—A symposium on the origins of resistance to drugs will be presented under the sponsorship of the Office of Naval Research and the University of Pennsylvania March 25-27 in Washington, D. C. The symposium will consist of six successive sessions, each devoted to one of the

following topics: (1) origins of microbial drug resistance; (2) tolerance and addiction to drugs, and alcoholism; (3) resistance to insecticides, herbicides; (4) factors in resistance to infectious agents; (5) biochemical mechanism of carcinogenesis and the nature of tumor immunity; and (6) integration of the questions of resistance from the genetic, physiological, and chemical points of view.

Scholarships in Public Health.—The Harvard School of Public Health is initiating postgraduate scholarships in amounts ranging up to \$5,000 to qualified candidates desiring to study at the school during the academic year 1954-1955. These scholarships are available to (1) physicians, dentists, and veterinarians interested in preventive medicine and seeking training in one or more public health specialties leading to a master of public health or a doctor of public health degree; (2) industrial physicians seeking training in industrial medicine leading to a master of industrial health degree; (3) public health nurses with a college degree and satisfactory field experience who wish additional public health training leading to a master of public health degree; (4) public health engineers seeking additional training and research experience in one or more public health specialties leading to either a master of science in hygiene or a doctor of science in hygiene degree; and (5) college graduates with academic experience in the natural sciences who desire training and research experience in one of the sciences related to public health and leading to either a master of science in hygiene or a doctor of science in hygiene degree. Applications must be filed by April 30. Winners will be announced June 1. Information may be obtained from the Secretary, Harvard School of Public Health, 55 Shattuck St., Boston 15.

Psittacosis Reported.—According to the U. S. Public Health Service, psittacosis virus was recently recovered from two parrots sent to a game farm in Virginia. X-ray examination of the attendant who cared for the birds showed evidence of pneumonitis about one week after discharge from a hospital where he was treated for pneumonia. A specimen of blood from the attendant was positive 1:8 with *Lygranum* antigen.—Psittacosis infection was reported in three parakeets in Connecticut, one of which had been imported from Florida and two from New York City from a source which had previously been incriminated. Reports have been made of four suspected cases in human beings and of two actual cases of psittacosis, in both of which the blood showed a positive complement fixation test in a titer of 1:128.—Pursuant to information received from the Tennessee health commissioner, indicating that human cases of psittacosis in that state had been traced to contact with parakeets purchased in North Carolina, an investigation by the North Carolina State Board of Health disclosed six cases of atypical pneumonia in the family of the owner of the aviary from which the parakeets had been purchased. It was reported that a large number of persons raise psittacine birds in this area and that many cases of atypical pneumonia have occurred. Blood samples and several birds have been sent to the virus laboratory of the Communicable Disease Center.

General Practitioners Meet in Cleveland.—The American Academy of General Practice will hold its annual scientific assembly March 22-25 at the Public Auditorium in Cleveland. At 1:30 p. m. Monday Dr. Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, will deliver the address "The Physician as a Citizen." Presentations by Dr. Roscoe L. Pullen, Columbia, Mo. (Why Train for General Practice?) and Dr. Joseph Hughes, Philadelphia (The Family Doctor and Our Youth) will follow. At 4 p. m. Dr. Howard A. Rusk, New York, will conduct a clinic on rehabilitation. The Tuesday session will open at 9 a. m. with presentation of "Significance of Thyroid Enlargement" by Dr. George Crile Jr., Cleveland, which will be followed by "Emergency Room Surgery" by Dr. Donald M. Glover, Cleveland, "Allergic Dermatitis" by Dr. George H. Curtis, Cleveland, and "Commonly Missed Diagnoses of Skin Diseases" by Dr. Clarence S. Livingood, Detroit. The afternoon session will be devoted to a symposium on peptic ulcer (Dr. C. Stuart Welch, Albany, N. Y., moderator) and a

symposium on tuberculosis (Dr. Sol Katz, Washington, D. C., moderator). Wednesday at 11:30 a. m. Dr. Richard W. TeLinde, Baltimore, will discuss "Unnecessary Surgery in Ob-Gyn." His presentation will be preceded by "Medical Complications in Obstetrics" by Dr. Robert M. Myers, Kansas City, Mo., "Management of Vaginal Bleeding" by Dr. Robert L. Faulkner, Cleveland, and "The Routine Multip" by Dr. Allan C. Barnes, Columbus, Ohio. The Wednesday afternoon session will open with a symposium "Headache, Dizziness and Syncope," which will be moderated by Dr. Theodore J. von Storch, New York. At 4 p. m. Sir Alexander Fleming will have as his topic "Beginning of Antibiotic Therapy." The afternoon session will conclude with a symposium on antibiotics in infectious diseases, for which Dr. Paul A. Bunn, Syracuse, N. Y., will serve as moderator. On Thursday rheumatic arthritis will be discussed by Dr. Thomas F. Frawley, Albany, N. Y., other collagen diseases by Dr. Robert Strecher, management of the anemias by Dr. William S. Middleton, Madison, Wis., and recent advances in therapeutics by John C. Krantz Jr., Ph.D., Baltimore. The president's reception will be held in the ballroom of the Hotel Cleveland Wednesday evening.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
 1954 Annual Meeting, San Francisco, June 21-25.
 1954 Clinical Meeting, Miami, Florida, Nov. 29-Dec. 2.
 1955 Annual Meeting, Atlantic City, N. J., June 6-10.
 1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.
 1956 Annual Meeting, Chicago, June 11-15.

AERO MEDICAL ASSOCIATION, Hotel Statler, Washington, D. C., March 29-31. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Mobile, April 15-17. Dr. Douglas L. Cannon, 537 Dexter Ave., Montgomery, Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, Cleveland, March 22-25. Mr. Mac F. Cahal, 406 West 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ACADEMY OF NEUROLOGY, Shoreham Hotel, Washington, D. C., April 29-May 1. Dr. Alexander T. Ross, 1040 West Michigan St., Indianapolis 7, Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Hotel Galvez, Galveston, Texas, April 7-9. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION FOR CLEFT PALATE REHABILITATION, Webster Hall Hotel, Pittsburgh, May 14-15. Dr. Jack Matthews, 1617 Cathedral of Learning, University of Pittsburgh, Pittsburgh 13, Secretary.

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE, Hotel Taft, New Haven, Conn., May 6-8. Dr. Samuel X. Radbill, 7043 Elmwood Ave., Philadelphia 42, Secretary.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, Ambassador Hotel, Atlantic City, N. J., April 11-15. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS, Philadelphia, Pa., April 8-10. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 6-8. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN ASSOCIATION FOR THE STUDY OF NEOPLASTIC DISEASES, Lord Baltimore Hotel, Baltimore, April 29-30. Dr. Bruce H. Sisler, P. O. Box 268, Gatlinburg, Tenn., Executive Secretary.

AMERICAN ASSOCIATION FOR THORACIC SURGERY, Sheraton-Mt. Royal Hotel, Montreal, Canada, May 3-5. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Roney Plaza Hotel, Miami Beach, Fla., April 5-10. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN COLLEGE OF PHYSICIANS, Conrad Hilton Hotel, Chicago, April 5-9. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., April 13-17. Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secretary.

AMERICAN FEDERATION FOR CLINICAL RESEARCH, Haddon Hall, Atlantic City, N. J., May 2. Dr. Lawrence E. Hinkle Jr., 525 East 68th St., New York 21, Secretary.

AMERICAN GOUTER ASSOCIATION, The Somerset, Boston, April 29-May 1. Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N. Y., Secretary.

AMERICAN HEART ASSOCIATION, Conrad Hilton Hotel, Chicago, April 1-4. Dr. William H. Bunn, 44 East 23d St., New York 10, Secretary.

AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY, Hotel Statler, Boston, March 27. Dr. Louis J. Feit, 66 Park Ave., New York, Secretary.

AMERICAN PEDIATRIC SOCIETY, The Inn, Buck Hill Falls, Pa., May 3-5. Dr. A. C. McGuinness, 237 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Ambassador Hotel, Atlantic City, N. J., April 10-16. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

AMERICAN PSYCHIATRIC ASSOCIATION, St. Louis, May 3-7. Dr. R. Finley Gayle Jr., 6300 Three Chopt Road, Richmond 21, Va., Secretary.

AMERICAN PSYCHOSOMATIC SOCIETY, Jung Hotel, New Orleans, March 27-28. Dr. Theodore Lidz, 333 Cedar St., New Haven 11, Conn., Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, Atlantic City, N. J., April 12-16. Dr. Philip Handler, Duke University, Durham, N. C., Secretary.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION, Haddon Hall, Atlantic City, N. J., May 3. Dr. William M. M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

AMERICAN SOCIETY FOR EXPERIMENTAL PATHOLOGY, Atlantic City, N. J., April 12-16. Dr. Cyrus C. Erickson, 874 Union Ave., Memphis 3, Tenn., Secretary.

AMERICAN SOCIETY OF MAXILLOFACIAL SURGEONS, Washington, D. C., April 25-28. Dr. Casper M. Epsteen, 25 East Washington St., Chicago 2, Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Atlantic City, N. J., April 12-16. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, Roosevelt Hotel, New Orleans, May 13-15. Dr. Herbert H. Thomas, 920 South 19th St., Birmingham, Ala., Secretary.

AMERICAN SURGICAL ASSOCIATION, Hotel Cleveland, Cleveland, April 28-30. Dr. R. Kennedy Gilchrist, 59 East Madison St., Chicago 3, Secretary.

ARIZONA MEDICAL ASSOCIATION, San Marcos Hotel, Chandler, April 25-28. Dr. Dermont W. Melick, 541 Security Bldg., Phoenix, Secretary.

ARKANSAS MEDICAL SOCIETY, Goldman Hotel, Fort Smith, April 19-21. Dr. J. J. Monfort, 215 Kelley Bldg., Fort Smith, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS, Chalfonte-Haddon Hall, Atlantic City, N. J., May 4-5. Dr. W. Barry Wood Jr., 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

CALIFORNIA MEDICAL ASSOCIATION, Hotel Biltmore, Los Angeles, May 9-13. Mr. John Hunton, 450 Sutter St., San Francisco 8, Executive Secretary.

CONFERENCE ON MICROCIRCULATORY PHYSIOLOGY AND PATHOLOGY, University of Texas, Galveston, Texas, April 8-9. Dr. Edward H. Bloch, Western Reserve University School of Medicine, Dept. of Anatomy, Cleveland 6, Chairman.

CONNECTICUT STATE MEDICAL SOCIETY, Bulkeley High School, Hartford, April 27-29. Dr. Creighton Barker, 160 St. Ronan St., New Haven, Executive Secretary.

EASTERN SECTION, AMERICAN CONGRESS OF PHYSICAL MEDICINE, Newark, N. J., April 10. Dr. H. L. Rudolph, 400 North Fifth St., Reading, Pa., Secretary.

EASTERN STATES HEALTH EDUCATION CONFERENCE, New York Academy of Medicine, New York, April 29-30. Dr. Iago Galdston, 2 East 103d St., New York 19, Secretary.

EASTERN SURGICAL SOCIETY, Boston, March 26-27. Dr. J. William Hinton, 130 East 79th St., New York, Secretary.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, Convention Hall, Atlantic City, N. J., April 12-16. Dr. M. O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

FLORIDA MEDICAL ASSOCIATION, Hollywood Beach Hotel, Hollywood, April 25-28. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

GEORGIA, MEDICAL ASSOCIATION OF, Hotel Dempsey and Macon Auditorium, Macon, May 2-5. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

HAWAII MEDICAL ASSOCIATION, Maybel Smyth Bldg., Honolulu, May 13-16. Dr. Samuel L. Yee, 510 S. Beretania St., Honolulu 13, Secretary.

INDUSTRIAL HEALTH CONFERENCE, Hotel Sherman, Chicago, April 24-30. Dr. E. C. Holmblad, 28 East Jackson Blvd., Chicago 4, Managing Director.

INDUSTRIAL MEDICAL ASSOCIATION, Hotel Sherman, Chicago, April 27-30. Dr. Arthur K. Peterson, 28 East Jackson Blvd., Suite 1300, Chicago 4, Secretary.

IOWA STATE MEDICAL SOCIETY, Des Moines, April 25-28. Dr. Allan B. Phillips, 529 36th St., Des Moines 12, Secretary.

ISTHMIAN CANAL ZONE, MEDICAL ASSOCIATION OF THE, El Panama Hotel, Panama City, R. P., March 24-26. Dr. I. Robert Berger, Box "A," Balboa Heights, Canal Zone.

JOHN A. ANDREW CLINICAL SOCIETY, Memorial Hospital, Tuskegee Institute, Ala., April 11-16. Dr. Eugene H. Dibble Jr., John A. Andrew Memorial Hospital, Tuskegee Institute, Ala., Secretary.

KANSAS MEDICAL SOCIETY, Hotel Jayhawk, Topeka, May 2-6. Dr. D. D. Vermillion, 315 West Fourth St., Topeka, Secretary.

MARYLAND, MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF, Baltimore, April 27-28. Dr. Everett S. Diggs, 1211 Cathedral St., Baltimore, Secretary.

MISSOURI STATE MEDICAL ASSOCIATION, Hotel Jefferson, St. Louis, April 4-7. Dr. E. Royce Bohrer, 634 North Grand Blvd., St. Louis 3, Secretary.

NATIONAL CONFERENCE ON HEALTH IN COLLEGES, Hotel Statler, New York, May 5-8. Mss Charlotte V. Leach, 12th Floor, 1790 Broadway, New York 19, Secretary.

NEBRASKA STATE MEDICAL ASSOCIATION, Hotel Cornhusker, Lincoln, May 10-13. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

NEW MEXICO MEDICAL SOCIETY, Hotel LaFonda, Santa Fe, May 13-15. Mr. R. R. Marshall, 221 West Central Ave., Albuquerque, Executive Secretary.

NEW YORK MEDICAL SOCIETY OF THE STATE OF, Hotel Statler, New York, May 10-14. Dr. Walter P. Anderton, 386 Fourth Avenue, New York 16, Secretary.

NORTH CAROLINA MEDICAL SOCIETY OF THE STATE OF, Hotel Carolina, Pinehurst, May 3-5. Dr. Millard D. Hill, 203 Capital Club Bldg., Raleigh, Secretary.

NORTH DAKOTA STATE MEDICAL ASSOCIATION, Grand Forks, May 1-4. Mr. Lyle A. Limond, Box 1198, Bismarck, Executive Secretary.

OHIO STATE MEDICAL ASSOCIATION, Columbus, April 13-15. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

OKLAHOMA STATE MEDICAL ASSOCIATION, Municipal Auditorium, Oklahoma City, May 9-12. Mr. R. H. Graham, 1227 Classen Drive, Oklahoma City, Executive Secretary.

PACIFIC NORTHWEST SOCIETY OF PATHOLOGISTS, Amphitheater, Dept. of Pathology, University of Washington School of Medicine, Seattle, April 23-24. Dr. John L. Whitaker, 315 South K St., Tacoma 3, Wash., Secretary.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Seattle, April 3. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Wash., Secretary.

RHODE ISLAND MEDICAL SOCIETY, Rhode Island Medical Society Library, Providence, May 4-5. Dr. Thomas Perry Jr., 106 Francis St., Providence 3, Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS: MONTREAL, CANADA, Mount Royal Hotel, March 31-April 2. Dr. Harry S. Morton, 900 Sherbrooke St., West, Montreal, Canada, Chairman.

SOCIETY OF AMERICAN BACTERIOLOGISTS, William Penn Hotel, Pittsburgh, May 2-7. Dr. John Hays Bailey, Sterling-Winthrop Research Institute, Rensselaer, N. Y., Secretary.

SOCIETY OF NEUROLOGICAL SURGEONS, The Waldorf Astoria, New York, April 23-24. Dr. Edgar F. Fincher, Emory University, Ga., Secretary.

SOCIETY FOR PEDIATRIC RESEARCH, Buck Hill Falls Inn, Buck Hill Falls, Pa., May 4-6. Dr. Sydney S. Gellis, 330 Brookline Ave., Boston 15, Secretary.

SOUTH CAROLINA MEDICAL ASSOCIATION, Ocean Forest Hotel, Myrtle Beach, May 11-13. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, Secretary.

SOUTHEASTERN ALLERGY ASSOCIATION, Dinkler-Plaza Hotel, Atlanta, Ga., March 25-27. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHWEST ALLERGY FORUM, Roosevelt Hotel, New Orleans, May 9-11. Dr. Stanley Cohen, S. W. Allergy Forum, 1441 Delachaise St., New Orleans 15, Secretary.

STUDENT AMERICAN MEDICAL ASSOCIATION, Sherman Hotel, Chicago, May 1-3. Mr. Russell F. Staudacher, 535 N. Dearborn St., Chicago 10, Executive Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, Nashville, April 18-21. Mr. V. O. Foster, 706 Church St., Nashville 3, Executive Secretary.

TEXAS MEDICAL ASSOCIATION, Gunter Hotel, San Antonio, May 3-5. Dr. J. M. Travis Sr., 1801 Lamar Blvd., Austin, Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Albuquerque, N. Mex., April 6-9. Sidney B. Clark, 314 U. S. Court House, El Paso, Texas, Secretary.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION, Olympic Hotel, Seattle, May 9-12. Mrs. L. Amy Darter, Division of Laboratories, State Dept. of Public Health, Berkeley, Calif., Secretary.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION, Hotel Biltmore, Los Angeles, May 8. Dr. Edward J. Zaik, 740 S. Olive St., Los Angeles 14, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5, Ontario, Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Tisiología, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirmot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitaire d'O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Scarborough, England, April 27-30, 1954. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6^e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Istituto di Storia della Medicina, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Caccuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, São Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Ill., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Buenos Aires, Argentina, April 21-28, 1954. Direccion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 13-17, 1954. Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands, General Secretary.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL CONGRESS OF THE SOCIEDAD DE MÉDICOS INTERNOS, Residentes y Becarios del Instituto Nacional de Cardiología de México, Acapulco, Mexico, April 21-24, 1954. For information address: Dr. Jorge Soberón Acevedo, Avenida, Cuauhtemoc No. 300, Mexico, D. F., Mexico.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12*, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Galliard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basle, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journées, 12, rue Pierre-Geofroix, Colombes (Seine) France.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8º andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigadeiro Luiz Antonio 651, Sao Paulo, Brazil.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION CONGRESS, Lake Garda, Italy, Sept. 15-21, 1954. Dr. Ada Chree Reid, 118 Riverside Drive, New York 24, N. Y., U. S. A., President.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigadeiro Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigadeiro Luiz Antonio 278-8º andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), São Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, São Paulo, Brazil, President.

PAN AMERICAN CONGRESS OF VETERINARY MEDICINE, Sao Paulo, Brazil, April 3-10, 1954. Dr. Joao Soares Veiga, Rua Pires da Mota 159, Sao Paulo, Brazil, Chairman of Organizing Committee.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., and Bethesda, Md., U. S. A., Sept. 12-17, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lastmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Held in approved medical schools where there are five or more candidates. Dates: Feb. 9-10; April 20-21 (Part II only); June 22-23; Sept. 7-8 (Part I only). Candidates may file examinations at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take. New candidates should apply by formal registration; registered candidates should notify the board by letter. Sec., Dr. John P. Hubbard, 133 S. 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARKANSAS: Examination. Little Rock, June 10-11. Sec., Dr. Joe Verser, Harrisburg. Eclectic. Little Rock, June 11-12. Sec., Dr. O. L. Atkinson, 2528 Central Ave., Hot Springs National Park.

CALIFORNIA: Written. Los Angeles, March 15-18; San Francisco, June 21-24; San Diego, Aug. 23-26; Sacramento, Oct. 18-21. Oral. Los Angeles, March 13; San Francisco, June 19; San Diego, Aug. 21; Los Angeles, Nov. 20. Oral and Clinical Examination for Foreign Medical School Graduates. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO: Examination. Denver, June 8-9. Final date for filing applications is May 8. Reciprocity. Denver, April 13. Final date for filing applications is March 13. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

DISTRICT OF COLUMBIA: Examination. Washington, May 10-11. Deputy Director, Mr. Paul Foley, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D. C.

FLORIDA: Examination. Jacksonville, June 27-29. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami.

GEORGIA: Examination and Reciprocity. Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agaña.

ILLINOIS: Examination and Reciprocity. Chicago, April 6-8; June 22-24, and Oct. 5-7. Supt. of Registration, Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

INDIANA: Examination. Indianapolis, June 16-18. Exec. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA: Examination. Iowa City, June 14-16. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Examination and Reciprocity. Kansas City, June 9-10. Sec., Dr. O. W. Davidson, 872 New Brotherhood Bldg., Kansas City.

KENTUCKY: Examination. Louisville, June 7-9. Address Mr. Raymond F. Nixon, Assistant Secretary, 620 S. 3rd St., Louisville 2.

MARYLAND: Examination. Baltimore, June 15-18. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1.

MICHIGAN: Examination. Detroit and Ann Arbor, June 1954. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

MISSISSIPPI: Examination and Reciprocity. Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson 113.

MONTANA: Reciprocity. Helena, April 5. Examination. Helena, April 6-7. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA: Examination. Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

NEW JERSEY: Examination. Trenton, June 15-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Examination and Reciprocity. Santa Fe, April 12-13. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

OHIO: Examination. Columbus, June 14-16. Reciprocity. Columbus, April 13. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Examination. Oklahoma City, June 9-10. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Examination. Portland, April 23. Final date for filing applications is March 22. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

SOUTH DAKOTA: Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TENNESSEE: Examination. Memphis, March 24-25. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: Examination and Reciprocity. Fort Worth, June 21-23. Rec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: Examination. Salt Lake City, July 7-9. Final date for filing application is June 15. Director, Mr. Frank E. Lees, Department of Business Regulation, 314 State Capitol, Salt Lake City.

VIRGINIA: Examination and Reciprocity. Richmond, June 16. Address: Virginia Board of Medical Examiners, 631 First St., S.W., Roanoke.

ALASKA: On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

VIRGIN ISLANDS: Examination. St. Thomas, June 9-10. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. Reciprocity. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARKANSAS: Examination. Little Rock, May 3-4. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

FLORIDA: Examination. Gainesville, June. Sec., Mr. M. W. Emmel, University of Florida, Box 340, Gainesville.

NEBRASKA: Examination. Omaha, May 4-5. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln 9.

OKLAHOMA: Examination. Oklahoma City, April 16-17. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Examination. Portland, June 5, Sept. 11 and Dec. 4. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Examination. June 11-12. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TEXAS: Examination. April 1954. Location determined by number of applicants from different sections of the state. Sec., Brother Raphael Wilson, C.S.C., 407 Perry-Brooke Bldg., Austin.

WISCONSIN: Examination. Madison, April 3 and June 5. Final date for filing application is March 26 and May 28. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

*Basic Science Certificate required.

DEATHS

Herrick, James Bryan ☉ Chicago, a recipient of the Distinguished Service Medal of the American Medical Association, died in the Presbyterian Hospital March 7, aged 92, of carcinoma of the stomach and peritonitis. Dr. Herrick was born in Oak Park, Ill., Aug. 11, 1861. He attended Oak Park High School and the Rock River Seminary at Mount Morris, Ill., and was graduated from the University of Michigan, Ann Arbor, in 1882. For a time he taught in the Central High School, Peoria, Ill., acquiring there a love of good literature and a facility for expressing himself in the English language. Through his association with Moses Coit Tyler he developed a great interest in Chaucer. Dr. Herrick then took up the study of medicine, receiving the degree of doctor of medicine from Rush Medical College in 1888. On completing his internship at Cook County Hospital, he joined the staff of his alma mater, serving as instructor in medicine from 1890 to 1894, adjunct professor from 1894 to 1900, professor from 1900 to 1927 and then became emeritus. In 1930 a fellowship was named in his honor at Rush Medical College by Dr. Frank Billings. He had been a member of the staff of Presbyterian Hospital since 1890, serving as president of the medical board from 1908 to 1913 and as vice-president from 1903 to 1907. He was attending physician to the Presbyterian Hospital from 1890 to 1924 when he was made consultant. A bas-relief portrait of him was presented to the hospital Nov. 6, 1943, as a feature of special anniversary exercises. The first electrocardiograph used in Chicago was in his office, and he was instrumental in having installed in the Presbyterian Hospital the first electrocardiograph used in any hospital in the city. He was identified with the Central Free Dispensary for many years and for a time was chairman of the medical advisory committee of Sunset Camp, a convalescent colony sponsored by the Chicago Heart Association. Herrick House, a camp for rheumatic heart victims in Fox River Valley, was named for him. A member of many scientific societies and a specialist certified by the American Board of Internal Medicine, Dr. Herrick served as president of the Society of Medical History of Chicago, American Association for the History of Medicine, Association of American Physicians, American Heart Association, which in 1951 presented him with a gold heart award, and of the Congress of American Physicians and Surgeons. In 1939, after concluding a year as vice-president of the American College of Physicians, the college conferred on him the title "master" for the first time in 11 years that the honor had been accorded. He was a founder of the Institute of Medicine of Chicago and active on its board of governors since 1915, holding the presidency in 1925. In October, 1949, several hundred fellows of the institute and prominent guests paid tribute to Dr. and Mrs. Herrick at a reception to mark the publication of Dr. Herrick's autobiography "Memories of Eighty Years." He was a member of the board of trustees of the Lewis Institute and the McCormick Memorial Institute, a past president of the Chicago Pathological Society and the Chicago Literary Club, and founder and first president of the Chicago Heart Association. He was founder and first president of the Chicago Society of Internal Medicine, and a member of the Central Society for Research. In 1935 a paper was prepared by Dr. William H. Holmes for the Central Interurban Clinical Club of which Dr. Herrick was an honorary member, reviewing his distinguished career as a student, teacher, and scientist. Notable awards were presented to Dr. Herrick, including honorary memberships and degrees from institutions and societies. In 1930 he received the Kober medal of the Association of American Physicians for research in scientific medicine, and in 1933 the New York Academy of Medicine elected him to honorary fellowship. He also received the "Gold Headed Cane" from the University of California Medical School in San Francisco for his accomplishments in the practice of medicine, in teaching, and in investigation. He gave such prominent lectures as the Fenger, George W. Gay, Harvey, and Abner Wellborn Calhoun lectures. In 1939, the American Medical Association, of which he was an

Associate Fellow and which he served as a member of the Judicial Council from 1928 to 1934, presented its Distinguished Service Medal to Dr. Herrick for his work on coronary thrombosis. A renowned internist, his articles on this subject are said to have done more to force clinical recognition of the conditions and to stimulate clinical and experimental study than all other writings on the subject. Probably most significant was the contribution "Clinical Features of Sudden Obstruction of the Coronary Arteries," published in *THE JOURNAL*, Dec. 7, 1912. He first described sickle cell anemia as a clinical entity in 1910. He was the author of "Handbook of Medical Diagnosis" and "A Short History of Cardiology." In 1907 he received the honorary degree of master of arts from the University of Michigan, which in 1932 awarded him the honorary degree of doctor of laws. In January, 1939, at the 194th convocation of the University of Chicago, the honorary doctorate of science was conferred on him and in June, 1940, the honorary degree of doctor of science was awarded to him by Northwestern University.

Burrier, Walter Painter ☉ Brookline, Mass.; born in Biddeford, Maine, April 12, 1882; Tufts College Medical School, Boston, 1908, specialist certified by the American Board of Psychiatry and Neurology; commissioned a surgeon in the U. S. Public Health Service from 1921 to 1924 when he joined the U. S. Veterans Bureau; lieutenant colonel in the Army of the United States from 1944 to 1946; formerly clinical director and executive officer at the Bronx Hospital in New York, where he was chief of the outpatient department; clinical director and executive officer, West Roxbury (Mass.) Hospital from 1924 to 1928; clinical director, Bedford (Mass.) Hospital from 1928 to 1934; chief of the neuropsychiatric division, Diagnostic Center, Washington, D. C., 1934-1935; clinical director at Veterans Administration Hospital, Northampton, Mass., from 1935 to 1937; clinical director from 1937 to 1945 and manager from 1945 to 1947 at the Veterans Administration Hospital in Bedford, Mass.; member of the Association of Military Surgeons of the United States, New England Society of Psychiatry, and the American Psychiatric Association; died in the Veterans Administration Hospital in West Roxbury, Jan. 28, aged 71, of carcinoma of the prostate.

Meyers, Milton Kayton ☉ Philadelphia; born in Philadelphia, Jan. 3, 1882; University of Pennsylvania Department of Medicine, Philadelphia, 1902; specialist certified by the American Board of Psychiatry and Neurology; instructor in child psychiatry at Jefferson Medical College; member of the Philadelphia Neurological Society, Pathological Society of Philadelphia, Northern Medical Society of Philadelphia, Anthropological Society, and Philadelphia Psychiatric Society; attending psychiatrist, Philadelphia Psychiatric Hospital; consulting neurologist, Jewish Hospital; neurologist, Northern Liberties Hospital; neuropsychiatrist, American Oncologic Hospital, assistant neurologist, Philadelphia General Hospital; translator and editor of Falta's "Endocrine Diseases, Including Their Treatment"; editor of "Lang's German-English Medical Dictionary"; contributor of the chapter on nervous diseases in Loewenberg's "Diagnostic Methods and Interpretations in Internal Medicine"; died Jan. 25, aged 72, of a heart attack.

Guequierre, Jacques Pierre ☉ Bryn Mawr, Pa.; born in Milwaukee Nov. 6, 1891; Marquette University School of Medicine, Milwaukee, 1924; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; associate professor of dermatology and syphilology at Temple University School of Medicine and the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania, Philadelphia; member and past president of the Philadelphia Dermatological Society; corresponding member of the Cuban Dermatological Society and the Cuban Cancer Society; chief of clinic, department of dermatology and syphilology at Temple University Hospital; chief of clinic in the department of physical therapy at Graduate

Hospital; consultant of dermatology at the Philadelphia State Hospital; affiliated with Bryn Mawr Hospital, where he died Jan. 15, aged 62, of coronary thrombosis and pneumonia.

Blydenburgh, George Theron ☉ Delaware, Ohio; born in Brooklyn April 16, 1891; Cornell University Medical College, New York, 1918; assistant surgeon in the U. S. Naval Reserves at the Brooklyn Naval Hospital, 1918-1919; resident physician, Red Cross Hospital, New York, 1919-1920; member of the American Public Health Association; formerly secretary-treasurer of the American Student Health Association; from 1945 to 1952 on the board of directors of the Ohio Tuberculosis and Health Association; at one time a medical missionary, serving as superintendent of the Susan Toy Ensign Memorial Hospital in Nanchang, China from 1920 to 1931; assistant physician, New York State Department of Mental Hygiene, 1932-1933; Ohio Wesleyan University physician and director of student health service since 1933; died Jan. 22, aged 62, of congestive heart failure.

Kirkpatrick, William David ☉ Bellingham, Wash.; born in Chelsea, Mass., March 10, 1872; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1895; member of the Pacific Coast Surgical Association, of which he was one of the founders; fellow of the American College of Surgeons; past president of the Washington State Medical Association; medical officer both for the American Red Cross and the U. S. Army during World War I; cited by Queen Marie of Roumania for meritorious services; for many years trustee for the Western Washington College of Education; affiliated with St. Luke's Hospital and St. Joseph's Hospital, where he died Jan. 13, aged 81, of coronary occlusion.

Arkebauer, Charles A. ☉ Van Buren, Ark.; Missouri Medical College, St. Louis, 1899; formerly on the faculty of the University of Arkansas School of Medicine in Little Rock; member of the American Psychiatric Association; for many years affiliated with the State Hospital for Nervous Diseases in Little Rock; died in the Crawford County Hospital Oct. 22, aged 86.

Artis, G. Hubert, Los Angeles; Rush Medical College, Chicago, 1927; at one time practiced in Cedar Rapids, Iowa, where he was on the staffs of Mercy and St. Luke's Methodist hospitals; retired as medical examiner for the Baltimore and Ohio Railway in Cumberland, Md.; died in Centinela Valley Hospital in Inglewood, Calif., Dec. 12, aged 63, of cerebral hemorrhage.

Ayers, Thomas Wilburn, Atlanta, Ga.; College of Physicians and Surgeons, Baltimore, 1886; for many years a medical missionary in China; died Jan. 5, aged 95, of arteriosclerotic heart disease.

Barnard, Frank Steele, Los Angeles; Hahnemann Medical College and Hospital of Philadelphia, 1894; died Jan. 16, aged 94, of bronchopneumonia and arteriosclerosis.

Beers, Merritt Isaac ☉ Middletown, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1901; an Associate Fellow of the American Medical Association; on the staff of the Elizabeth A. Horton Memorial Hospital; died Dec. 11, aged 76, of arteriosclerotic heart disease.

Bender, Max, Union City, N. J.; Jefferson Medical College of Philadelphia, 1915; served on the staffs of the Christ Hospital in Jersey City and the North Hudson Hospital in Weehawken; died Jan. 11, aged 66, of coronary thrombosis.

Bickel, James T. ☉ Lamar, Mo.; University Medical College of Kansas City, Mo., 1901; died Dec. 7, aged 81, of arteriosclerotic heart disease.

Biggers, John Alvin, Manhattan Beach, Calif.; University of Louisville (Ky.) Medical Department, 1907; veteran of the Spanish-American War; served on the staffs of the Los Angeles County General and Hollywood Presbyterian hospitals; died Jan. 7, aged 78, of lymphosarcoma.

Booth, William Telford ☉ Coronado, Calif.; Emory University School of Medicine, 1930; resigned from the regular Navy Jan. 4, 1938; killed in an airplane crash Jan. 23, aged 48.

Bright, John Fulmer, Richmond, Va.; Medical College of Virginia, Richmond, 1898; emeritus professor of anatomy at his alma mater; served during World War I; mayor of Richmond from 1924 to 1940; died in the Johnston-Willis Hospital Dec. 29, aged 76, of aortic stenosis.

Brooks, Isaac William, Torrington, Wyo.; College of Physicians and Surgeons, Dallas, Texas, 1905; died Jan. 20, aged 80, of cerebral hemorrhage.

Burns, William Milton ☉ North Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; for many years member of the school board; served as mayor; died Dec. 29, aged 75, of acute coronary thrombosis.

Bursheim, Peder Joseph ☉ Des Moines, Iowa; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1905; died in the Iowa Lutheran Hospital Jan. 17, aged 70, of carcinoma of the colon.

Butt, Arthur Parker Jr. ☉ Elkins, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1929; chief surgeon at Davis Memorial Hospital; died in Orlando, Fla., Dec. 16, aged 51, of coronary thrombosis.

Cafferky, Allan Bryan, Clarkston, Wash.; College of Medical Evangelists, Loma Linda and Los Angeles, 1945; served as a medical missionary; died in White Memorial Hospital in Los Angeles, Dec. 31, aged 33, of adenocarcinoma of the ascending colon.

Cardenas, Valentin Oriol ☉ Orlando, Fla.; Universidad de la Habana Facultad de Medicina y Farmacia, Cuba, 1927; member of the Illinois State Medical Society; formerly practiced in Chicago, where he was affiliated with the Columbus Hospital; affiliated with the Orange Memorial Hospital; served during World War II; died Jan. 31, aged 50, in a plane crash.

Coffey, George W., Concordia, Kan.; Kansas City (Mo.) Medical College, 1893; died Jan. 19, aged 87, as the result of a fall.

Cooper, Benjamin F. ☉ Detroit; Detroit College of Medicine, 1930; served during World War II; fellow of the American College of Surgeons; affiliated with Holy Cross Hospital and the East Side General Hospital; died in the Saratoga General Hospital Jan. 19, aged 47, of coronary occlusion.

Cozzolino, James Anthony, Hamden, Conn.; Jefferson Medical College of Philadelphia, 1920; on the staff of St. Raphael's Hospital in New Haven; died Jan. 12, aged 59, of myocardial infarction.

Danciger, Jacob Adolph ☉ Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1937; assistant professor of pediatrics at his alma mater; specialist certified by the American Board of Pediatrics; member of the American Pediatric Society; past president of the Memphis Pediatrics Society; served during World War II; died in John Gaston Hospital Nov. 24, aged 39, of chronic glomerulonephritis.

Day, George Huff ☉ New Albany, Ind.; University of Louisville (Ky.) Medical Department, 1913; served in France during World War I; on the staff of St. Edward's Hospital; died Jan. 20, aged 63.

DeCanio, John ☉ Talihina, Okla.; Marquette University School of Medicine, Milwaukee, 1940; member of the Medical Association of Montana; associated with the Indian Service; served during World War II; formerly head physician at the Claremore Indian Hospital in Claremore; medical officer in charge of Talihina Medical Center, U. S. Indian Hospital; died Dec. 3, aged 43, of multiple myeloma.

Dever, Neal, McAdoo, Pa.; Temple University School of Medicine, Philadelphia, 1911; also a lawyer; medical inspector for the McAdoo Borough School District for many years; died Dec. 13, aged 81, of senility.

Dezell, Earl R., Glendale, Calif.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1908; died Dec. 30, aged 70, of coronary occlusion and arteriosclerosis.

Dillman, Theodore Albert, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908; died in Detroit Jan. 6, aged 77, of arteriosclerosis.

Frey, Albert ☉ Buffalo; University of Buffalo School of Medicine, 1902; an Associate Fellow of the American Medical Association; affiliated with Deaconess Hospital; died Jan. 8, aged 74.

Gadol, William Norman ☉ Bethesda, Md.; Syracuse University College of Medicine, 1948; formerly assistant surgeon in the U. S. Public Health Service Reserve; died Jan. 17, aged 35, of coronary occlusion.

Hayward, Herbert ☉ Hamilton, Mont.; Milwaukee Medical College, 1908; fellow of the American College of Surgeons; served during World War I; chief surgeon, Marcus Daly Memorial Hospital, until his retirement two years ago; special consultant at the Rocky Mountain Laboratory; died suddenly Jan. 4, aged 71, of coronary thrombosis.

Hebble, Robert C., Springfield, Ohio; Starling Medical College, Columbus, 1895; past president of the Clark County Medical Society; on the courtesy staffs of the City Hospital and Mercy Hospital, where he died Dec. 5, aged 79, of coronary thrombosis.

Hochfeld, Herbert David ☉ Seattle; Universität Bern Medizinische Fakultät, Switzerland, 1935; on the staff of the Virginia Mason Hospital, where he died Dec. 24, aged 45, of a postoperative infection.

Hoeffel, Adelaide Doolittle ☉ Chicago; the Hahnemann Medical College and Hospital, Chicago, 1903; formerly on the faculty of her alma mater; on the courtesy staff of the Chicago Memorial Hospital, where she died Jan. 20, aged 86, of ruptured diverticulitis of the sigmoid colon, empyema of the gallbladder, and arteriosclerosis.

Hollingworth, Carl J., Portland, Ore.; University of Oregon Medical School, Portland, 1926; assistant clinical professor of medicine at his alma mater; a member of the board of directors of the Willamette University in Salem; formerly associated with the U. S. Public Health Service; died Jan. 14, aged 64, of rheumatic heart disease, coronary arteriosclerosis, and nephrosclerosis.

Horwitz, Sander ☉ Peoria, Ill.; Missouri Medical College, St. Louis, 1895; an Associate Fellow of the American Medical Association; member of the American Public Health Association; formerly district health officer for the state board of health, and health commissioner of Peoria; died in Chicago Jan. 17, aged 86, of coronary thrombosis.

Humphrey, Lester Hayden ☉ Silver Springs, N. Y.; Albany (N. Y.) Medical College, 1900; served as health officer for Gainesville; for many years county coroner; member of the Wyoming County Welfare Department; on the staff of the Wyoming County Community Hospital in Warsaw, where he died Nov. 14, aged 82, of cerebral hemorrhage.

Inge, Francis Marion ☉ Mobile, Ala.; Maryland Medical College, Baltimore, 1910; served during World War I; died in the Methodist Hospital, Houston, Texas, Jan. 13, aged 69, of abdominal aneurysm.

Lewin, Adolph Leo ☉ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1892; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Germany, 1895; for many years member of the school board; affiliated with Western Pennsylvania, St. Francis, and Montefiore hospitals; died Dec. 31, aged 82, of coronary occlusion.

Lougee, William Wheeler ☉ Malden, Mass.; New York University Medical College, New York, 1898; past president of the Malden Medical Society; for many years medical inspector in Malden schools; served on the staff of Malden Hospital; trustee of the Malden Savings Bank; died Jan. 10, aged 86, of a heart attack.

McAnally, William Jefferson ☉ High Point, N. C.; Baltimore Medical College, 1897; past president of the Guilford County Medical Society; for many years health officer of High Point and member of the school board; veteran of World War I; served as trustee of the Agricultural and Technical College of North Carolina in Greensboro; died Jan. 5, aged 80, of cerebral hemorrhage.

McClellan, Wallace Roy, Akron, Ohio; Jefferson Medical College of Philadelphia, 1912; served during World War I; examining physician at Goodyear Tire & Rubber Company for many years; died in the Goodyear Hospital Jan. 15, aged 66, of rupture of aortic aneurysm.

McNamara, William E. ☉ Lansing, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; served as a member of the state council of health; fellow of the American College of Surgeons; past president of the Ingham County Medical Society; a founder of the People's State Bank; on the staff of the Edward W. Sparrow Hospital and St. Lawrence Hospital, where he died Jan. 19, aged 76.

Manning, Gustave Randolph ☉ New York City; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Germany, 1899; professor of gastroenterology at New York Polyclinic Medical School and Hospital; member of the National Gastroenterological Association, of which he was secretary; president of the Society for the Advancement of Gastro-Enterology when it was formed in 1933; served during World War I; on the staff of the Polyclinic Hospital, where he died Dec. 1, aged 79, of arteriosclerosis.

Marchildon, John Woods ☉ McClure, Ill.; Rush Medical College, Chicago, 1903; an Associate Fellow of the American Medical Association; member of the California Medical Association and the American Urological Association; formerly on the faculty of St. Louis University School of Medicine; died in Cape Girardeau, Mo., Jan. 29, aged 77.

Mayginn, Patrick Henry ☉ Tulsa, Okla.; St. Louis College of Physicians and Surgeons, 1897; an Associate Fellow of the American Medical Association; died Jan. 19, aged 82.

Miller, Arthur Weston ☉ Riverside, Calif.; University of Nebraska College of Medicine, Omaha, 1927; fellow of the American College of Surgeons; past president of the Riverside County Medical Society; served during World War II; on the staff of the Riverside Community Hospital, where he died Dec. 28, aged 50, of coronary sclerosis.

Moore, Samuel Barlow ☉ New York City; New York Homeopathic Medical College and Hospital, New York, 1901; affiliated with Metropolitan Hospital and Flower and Fifth Avenue Hospitals, where he was an alumnus trustee; formerly on the faculty of his alma mater; died Jan. 17, aged 74, of coronary disease.

Mueller, Emil F., Dyersville, Iowa; Northwestern University Medical School, Chicago, 1904; died in Sacred Heart Sanitarium in Milwaukee Jan. 22, aged 73, of coronary thrombosis.

Nibbelink, Benjamin ☉ Kalamazoo, Mich.; Detroit College of Medicine, 1912; died in the Bronson Hospital Jan. 10, aged 66, of myocardial infarction.

Nussbaum, Samuel Solis, Kingston, N. Y.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1927; medical director of the Kingston public school system; affiliated with Kingston Hospital and the Benedictine Hospital; died Nov. 15, aged 52, of coronary thrombosis.

Oliver, Augustus Albert, Paris, Tenn.; University of Nashville Medical Department, 1910; for many years county health officer; died in St. Thomas Hospital in Nashville Jan. 11, aged 69, of heart disease and a kidney infection.

Oliver, Robert Byron, Idabel, Okla.; University of Arkansas School of Medicine, Little Rock, 1906; served during World War I; died Jan. 9, aged 81.

Pallister, Stanley Wilson, Bearsville, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1898; fellow of the American College of Surgeons; for many years on the staff of the Carson C. Peck Memorial Hospital in Brooklyn; died in Woodstock Jan. 6, aged 77, of acute dilatation of the heart.

Pierson, Percy Raymond ☉ New Albany, Ind.; University of Louisville (Ky.) Medical Department, 1912; served overseas during World War I; on the staff of St. Edward Hospital; died in St. Joseph Infirmary, Louisville, Ky., Dec. 29, aged 65, of carcinoma of the lung.

Piper, Charles Leslie ☉ Vernal, Utah; University of Oklahoma School of Medicine, Oklahoma City, 1915; secretary of the Uintah Basin Medical Society; served during World War I; affiliated with Uintah County Hospital; died Dec. 21, aged 64, of coronary occlusion.

Proctor, Carter Atwater ☉ Sullivan, Mo.; Washington University School of Medicine, St. Louis, 1912; member of the American Academy of General Practice; died Dec. 29, aged 65, of coronary disease.

Richards, Thomas ☉ Glassport, Pa.; Jefferson Medical College of Philadelphia, 1926; president of the board of health; director of the Bank of Glassport; served on the staff of the McKeesport (Pa.) Hospital; died Dec. 30, aged 53, of coronary occlusion.

Robinson, Joseph Arnold ☉ New Bethlehem, Pa.; University of Pittsburgh School of Medicine, 1913; died in Western Pennsylvania Hospital, Pittsburgh, Nov. 26, aged 61, of heart failure.

Rodman, Nathaniel Fulford ☉ Norfolk, Va.; Jefferson Medical College of Philadelphia, 1914; member of the Southeastern Surgical Congress and the American Academy of General Practice; past president of the Norfolk County Medical Society; served during World War I; affiliated with Norfolk General, De Paul, and Leigh Memorial hospitals; died Jan. 14, aged 63, of multiple cerebral thrombosis and hypertension.

Rogers, Earl Bertram, El Paso, Texas; Northwestern University Medical School, Chicago, 1902; past president of the El Paso County Medical Society; affiliated with Hôtel Dieu, Sisters' Hospital; died in Southwestern General Hospital Dec. 31, aged 79, of carcinoma of the bladder.

Schilling, John Gaillard ☉ Houston, Texas; University of Texas School of Medicine, Galveston, 1909; fellow of the American College of Surgeons; on the consulting staff, San Jacinto Memorial Hospital in Baytown; on the surgical staff, Methodist Hospital; on the gynecologic staff, Memorial Hospital; on the visiting staff, St. Joseph's Infirmary; died Jan. 4, aged 68.

Scouller, John Samuel ☉ Philadelphia; Jefferson Medical College of Philadelphia, 1919; on the staff of the Northeastern Hospital; died Jan. 5, aged 60, of a heart attack.

Sinkler, Francis Wharton ☉ Bryn Mawr, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; member of the American Neurological Association; past president of the Aid Association of the Philadelphia County Medical Society; formerly on the faculty of the Graduate School of Medicine, University of Pennsylvania, Philadelphia; served on the staff of the Episcopal Hospital in Philadelphia; died in Bryn Mawr Hospital Jan. 2, aged 76, after a fracture of his hip.

Sinkler, Wharton Jr., ☉ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1940; on the board and formerly chief resident physician at the Hospital of the Protestant Episcopal Church; served as resident at the Hospital of the Woman's Medical College of Pennsylvania; served during World War II; died Dec. 25, aged 39.

Sorensen, Jens, Detroit; Københavns Universitet Laegevidenskabelige Fakultet, Denmark, 1888; died Jan. 18, aged 86, of coronary occlusion.

Southwick, George Edwin, Chatham, Ill.; Miami Medical College, Cincinnati, 1892; died in the Memorial Hospital, Springfield, Jan. 19, aged 85.

Stewart, J. Sewell ☉ Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1919; served on the staff of Shady-side Hospital, where he died Jan. 19, aged 75, of a central nervous system lesion, type undetermined.

Taphorn, D. Henry ☉ Effingham, Ill.; Washington University School of Medicine, St. Louis, 1898; an Associate Fellow of the American Medical Association; for many years county coroner; served on the Effingham city council as commissioner of health and safety from 1923 to 1931; railroad surgeon for the Illinois Central and Pennsylvania railroads; died in St. Anthony's Hospital Jan. 14, aged 82, of myocarditis and intestinal obstruction.

Tomkins, Harry S., Los Angeles; Chicago College of Medicine and Surgery, 1917; died in Duarte Dec. 24, aged 67, of carcinoma of the esophagus.

Urevitz, Abraham ☉ New York City; University College of Medicine, Richmond, 1910; member of the Medical Society of New Jersey; served during World War I; affiliated with the Hospital for Joint Diseases; died in Union City, N. J., Jan. 13, aged 67, of coronary thrombosis.

Verta, John Camillo ☉ Schenectady, N. Y.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1893; on the courtesy staff of the Ellis Hospital, where he died Oct. 2, aged 87, of pernicious anemia.

Waters, La Verne Francis ☉ Medina, N. Y.; University of Buffalo School of Medicine, 1908; served as county coroner and as health officer; on the staff of the Medina Memorial Hospital; died in the Buffalo General Hospital Jan. 13, aged 69, of embolism after an operation for hernia.

Weiss, Solomon A. ☉ Chicago; Chicago College of Medicine and Surgery, 1914; on the staff of the Belmont Hospital; died in St. Anne's Hospital Jan. 21, aged 63, of melanosis.

Worden, Rollin Duane, Ravenna, Ohio; University of Vermont College of Medicine, Burlington, 1915; served during World War I; formerly health commissioner of Portage County; during World War II served as a member of the selective service board and later as its medical examiner; died in the Lakeside Hospital in Cleveland Dec. 10, aged 64.

Yavorsky, George William ☉ Belle Plaine, Iowa; State University of Iowa College of Medicine, Iowa City, 1905; affiliated with Mercy and St. Luke's hospitals in Cedar Rapids; surgeon for the Chicago and Northwestern Railway; died in Cedar Rapids Jan. 7, aged 70, after pneumonectomy for bronchogenic carcinoma of the left lung.

Young, Roland Caldwell ☉ Toledo, Ohio; Rush Medical College, Chicago, 1921; president of the board of trustees of the Toledo Y. M. C. A.; affiliated with Flower Hospital, where he was past chief of staff, and a trustee, and Maumee Valley Hospital, where he was past chief of staff, Toledo, Mercy, and Riverside hospitals; consultant at Toledo State Hospital; died Jan. 7, aged 57, of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

Schorr, Harold Michael ☉ New York City; New York University College of Medicine, 1941; served as assistant professor of clinical medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with Bellevue and University hospitals; major, Medical Corps, U. S. Army; died in Camp Rucker, Ala., Dec. 16, aged 38.

Marvin, Theodore Richard ☉ Sarasota, Fla.; born in Jefferson, Ohio, Nov. 21, 1916; Ohio State University College of Medicine, Columbus, 1943; interned at the Naval and Southern Baptist hospitals in New Orleans; member of the Medical Association of the State of Alabama; initially appointed an ensign in the U. S. Naval Reserve in 1942; resigned this commission in May 1943 to participate in the Navy's V-12 medical training program; appointed a lieutenant (j. g.) in the Naval Medical Corps; became a lieutenant (j. g.) in 1944 and was promoted to lieutenant in the reserve in 1946; during World War II served in the Pacific in the USS LST-711, at Fleet Hospital no. 111 and Naval Base Hospital no. 18 and with Escort Division 7; released to inactive duty in June, 1946; became associated with the staff of the Perry County Hospital in Marion, Ala.; recalled to active duty in January, 1953, and ordered to the Naval School of Aviation Medicine, Pensacola, Fla.; designated a naval flight surgeon on completion of this course in June, 1953; ordered to the Marine Corps Air Station, Cherry Point, N. C.; last duty assignment was the Marine Air Group 11; died Dec. 30, aged 37, of injuries received in an automobile accident near Atsugi, Japan.

FOREIGN LETTERS

AUSTRALIA

Australia's National Health Service.—Until the establishment of the Commonwealth of Australia in 1901, all legislative powers resided with the six states (Queensland, New South Wales, Western Australia, Victoria, Tasmania, and South Australia), but, on federation, defense, mail and telegraphic service, and customs and excise rights were surrendered to the Commonwealth. The only health powers, however, that the states surrendered were those relating to quarantine. It was not until 1947 that the Commonwealth government obtained the power to make laws with respect to the provision of maternity allowances; widows' pensions; child endowment; unemployment; pharmaceutical, sickness, and hospital benefits; medical and dental services (but not so as to authorize any form of civil conscription); benefits to students; and family allowances. These powers were sought because three years previously the Labor government then in power had passed a Pharmaceutical Benefits Act designed to supply free to patients compounded and un-compounded drugs included in a government formulary, but the medical profession objected to the restrictions imposed by that formulary and other unacceptable provisions of the scheme. When the legislation was challenged by the Medical Society of Victoria, the High Court of Australia (corresponding to the United States Supreme Court) declared the legislation to be outside the powers of the Commonwealth parliament. In 1948, under the increased powers obtained by referendum, the Labor government passed similar legislation, but again the medical profession refused to participate. Subsequently, when the government attempted, under amended legislation, to use coercive powers, the High Court was again approached and it held that such coercion entailed a measure of civil conscription and the enactment was, therefore, invalid. There the matter remained until 1950.

Although the government in 1948 passed a National Health Service Act, under which it would have been possible to establish a complete national medical service free to the patient and paid for out of social service taxation, no action was taken under the legislation. In 1949 the Labor government was defeated and succeeded by a coalition government of Liberal (conservative) and Country (farm) party members led by the present prime minister. Sir Earle Page, a physician, was appointed Minister for Health, and soon after he announced that the government would encourage voluntary health insurance, using its funds to amplify the coverage against sickness provided by approved insurance organizations. He has received the cooperation of the medical and pharmaceutical professions in developing his plans. The following steps have been taken:

1. By arrangement with the state governments each school child under 12 years of age receives free one-third of a pint of milk per day, and in remote areas where fresh milk is not available powdered milk is supplied.

2. In July, 1950, a scheme of tuberculosis allowances was brought into operation and sufferers from the disease, while undergoing treatment, are paid cash allowances. The Commonwealth government also contributes to the cost of mass x-ray surveys conducted by state health departments and to the capital costs of construction of sanatoriums.

3. In September, 1950, a substantial list of lifesaving and disease-preventing drugs was made available free to all citizens. They are supplied to patients by approved druggists on the prescription of a physician, and the government pays the druggist. Included in the list are the sulfonamides, insulin, penicillin, streptomycin, chloramphenicol, chlortetracycline, vaccines, serums, and many other drugs of proved value, and additions to the list are made from time to time on the recommendation of a pharmaceutical benefits advisory committee, on which the medical and pharmaceutical professions are represented.

4. In February, 1951, a free medical service for aged, invalid, and widowed pensioners, and their dependents, including about 600,000 persons, was introduced. Under this service beneficiaries receive free of cost from participating physicians, any physician being eligible to participate, those services customarily rendered by a general practitioner in his office or in the patient's home. In addition to the drugs available free to all citizens, they may receive, on prescription and without cost, any drug in the British Pharmacopoeia, either alone or in combination. There is no contract between the government and the physician, but by arrangement with the Federal Council of the British Medical Association in Australia, those rendering service charge concessional rates (9 shillings a consultation and 11 shillings a domiciliary visit or about 60% of private charges). Payment is made to the doctor by the health department on production of vouchers signed by the patient, who certifies that he has received service and requests that payment be made to the doctor by the government on his behalf.

5. In July, 1953, a medical benefits scheme was started, under which the amounts payable in return for premiums by organizations offering insurance against the costs of medical care are supplemented by subsidy from government funds paid through those organizations. Commercial insurers are excluded from the scheme, and only mutual nonprofit organizations are approved, one of the conditions of approval being that the insurance organization must pay to its contributors an amount not less than the government subsidy as set out in a table of subsidies, but in no case shall the total benefit exceed 90% of the physician's account. In that way a personal obligation to meet part of the cost of medical care is imposed on the contributor, thus safeguarding available funds against abuse. As an additional safeguard payment is made by a benefit organization only on production of a physician's receipt, except in cases of hardship, when benefits may be paid before the patient has paid his physician. The amount of the subsidy varies in relation to the nature of the medical service, but for any particular service it remains the same whatever actual fee the physician charges, whether the service is rendered by a general practitioner or a specialist. The table of subsidies lists nearly 1,000 items covering the whole range of medical practice, including consultations, operations, obstetrics, radiological service, and pathological study.

For about 10 years benefits have been paid by the Commonwealth at the rate of 8 shillings a day to all persons occupying hospital beds, but voluntary insurance against hospital costs is now being supported by the payment of an additional 4 shillings a day to members of hospital benefit organizations, usually, in fact, the same organizations that offer coverage against the costs of medical care.

Because the present government did not have a separate majority until May, 1953, it hesitated to introduce new legislation that a hostile upper house would reject. Consequently the foregoing plans were developed by the promulgation of regulations under existing legislation—the Pharmaceutical Benefits Act and the National Health Service Act of 1948—but in December, 1953, the National Health Act was passed. That measure has established a firm legal basis for the services now in existence.

It will be seen that, unlike Great Britain on the one hand with a nationalized medical service and the United States on the other hand with its predilection for personal responsibility, Australia has adopted a middle course, a system of self-help aided by the resources of government. The last six months have shown that the public reaction is favorable to the proposals, as during that time there has been a vast increase in membership of insurance organizations, and already at least half of the Australian population is covered by voluntary insurance against some part of the costs of illness.

ECUADOR

Hemodynamic Changes in Anemia.—Drs. Lanari, A. García, and C. Nuñez of Guayaquil reported on the hemodynamic changes that occurred in a group of men with tropical anemia of various degrees of intensity, but without cardiac, pulmonary, or infectious diseases. The quantity of hemoglobin in the blood of all patients varied between 1.7 and 8 gm. per 100 cc. The authors reported the following observations: 1. The blood volume of these patients was diminished in proportion to the quantity of hemoglobin. This diminution was of moderate intensity when the hemoglobin level was more than 6 gm. per 100 cc. It was marked when the quantity of hemoglobin was less than this. The lower the quantity of hemoglobin, the greater the diminution in blood volume. When the hemoglobin fell to 1.7 gm. per 100 cc., the blood volume diminished to about 25% of normal. 2. The amount of oxygen in the arterial and venous blood in these patients was below normal. When the hemoglobin was 8 gm. or more per 100 cc., the saturation of arterial blood was 100%. When the hemoglobin was less than 8 gm. per 100 cc., the blood was not saturated with oxygen. The degree of saturation decreased as the hemoglobin diminished down to 6 gm. per 100 cc. At this figure, saturation was about 80%. Further diminution of hemoglobin did not decrease the degree of saturation. 3. The so-called "cardiac index" increased in proportion to the diminution of hemoglobin. Thus, an index of 5.5 when the hemoglobin was 8 gm. per 100 cc. increased up to 9.8 when the hemoglobin fell to 1.7 gm. per 100 cc. 4. The velocity of circulation increased with the diminution of hemoglobin. The normal velocity was doubled when the hemoglobin dropped to 1.7 gm. per 100 cc. 5. The pulmonary ventilation in these patients was increased but this may normally show variations due to the emotional condition of the patients during the examinations. Pulmonary hyperventilation was marked when these patients were subjected to physical exercises. This hyperventilation was greater in patients with hemoglobin levels less than normal, and in such patients it lasted longer after physical exercises. 6. The pulse and respiratory rate were increased when the hemoglobin fell below 8 gm. per 100 cc. Thus, a pulse rate of 80 when the hemoglobin was 8 gm. per 100 cc. may increase to 120 when the hemoglobin falls to 1.7 gm. per 100 cc. 7. The minute volume of circulation increased as the hemoglobin decreased. When the hemoglobin fell to 1.7 gm. per 100 cc., the minute volume was triple the normal figure and it increased to even six times normal after physical exercise. 8. The volume of blood expelled from the heart with each systole was also increased and increased still more after physical exercise in these patients. (*Gac. méd. Guayaquil* 8:397, 1953).

Blood Groups in Indians of Ecuador.—Before the Spanish Conquest, the Indian population of the coastal, Andean, and Amazonian regions of Ecuador consisted of several races that have now almost disappeared. Only a few groups of descendants of two of the coastal and three of the Amazonian races are still found, whereas the Indian population from ancient Andean races is very large, especially in the high plateaus of the Andes. The Indian population comprises 16% of the total population of the country. In a racial sense, the Indians are isolated from the rest of the population. They live in zones 10,000 ft. or more above sea level and do not mix with the white population. The contrary is observed in cities of the lower zones, where mestizos predominate as a result of several generations of marriages between the Spaniards and Indians. Dr. A. Santiana, professor of anthropology of the Central University of Ecuador, carried on extensive researches on the blood groups in Indians. Of 8,112 Andean Indians, 7,707 (95.01%) had blood that corresponded to group O; 290 (3.57%), to group A; 94 (1.16%), to group B; and 21 (0.26%), to group AB. Of 1,055 Amazonian Indians, 1,036 (98.20%) had blood that corresponded to group O; 17 (1.61%), to group A; 2 (0.19%), to group B; and none, to group AB. Of 150 coastal Indians, who are probably of the same somatic Andean type, 100% corresponded to group O. The results were probably due to the small number of Indians in this group. Probably Indians of groups A and B could have been found in a study of larger groups of coastal Indians.

Antihistaminic Agents for Burns.—The antihistaminic agents have local anesthetic properties. Some antihistaminics are more effective than procaine. These substances, used in the prevention and in treatment of solar erythema and of erythema due to ultraviolet radiations, give good results. One of the antihistaminic agents Dr. P. Naranjo used in treating burns due to heat and chemical substances was pyrilamine (Neo-Antergan). He applied a solution of 0.1 to 0.5% of the antihistaminic agent over the burn every 15 or 30 minutes until the pain was relieved. Then he applied an antihistaminic salve daily for one to three days. The pain was usually controlled within 30 minutes after the first application of the solution. Thereafter only a slight pain was reported by the patients. When the antihistaminic agents are applied in the first minutes after the burn, blisters and edema of the skin are prevented. If blisters are already formed, they reabsorb within 24 hours. If secondary infection occurs, the well-established treatments for infection should be used (*Gac. méd. Guayaquil* 8:414, 1953).

FINLAND

Campaign Against Tuberculosis.—With a population of 4 million, Finland has only 13.5 inhabitants per square kilometer. This thin distribution of the population partly explains some of the features peculiar to the behavior of tuberculosis in the country, but on the whole the campaign against this disease has followed a pattern closely resembling that of other European countries, especially Denmark, Norway, and Sweden. As in these countries, voluntary activities have gradually been taken over by the state and local authorities in an attempt to secure more effective centralization. In 1944 a state tuberculosis committee was appointed to draft new legislation for the control of this disease. The recommendations of this committee led to a new law, which became operative in 1949 and provided for the partition of the country in 19 tuberculosis districts under the administration of the Ministry of Health. Each such district is required to maintain a tuberculosis bureau and a sanatorium. Special institutions must be provided for occupational therapy, for children threatened by tuberculosis in their homes, and for refractory patients. BCG vaccination is not compulsory, but everyone who has reached the age of 15 must submit to a medical examination at his local bureau unless he can present a medical certificate, not more than three months old, by a lung specialist exempting him from examination. BCG vaccination was started in 1941, but during the next few years little use was made of it, and only about 25,000 persons had been thus vaccinated up to 1944. In 1951 a total of 123,063 persons were vaccinated with BCG, and the total number of such vaccinations has risen to about one million. In spite of this vaccination being voluntary, nearly every newborn infant is now vaccinated with BCG, the reaction being subsequently tested with tuberculin at a tuberculosis bureau. Tuberculin testing is repeated at the time of entering school, and BCG vaccination is repeated when necessary. Since 1943 almost every tuberculin-negative man called up for military service has been vaccinated with BCG provided by a bacteriological laboratory in Gothenburg. The Tuberculosis Association, founded in 1941 by the patients themselves, has grown into a powerful organization with about 30,000 members and both the will and the means to give the victims of tuberculosis substantial help. In 1953, this association opened a high school with accommodation for 52 pupils. A center for the re-education of tuberculous war invalids has also been provided by this association.

Crude Liver Extracts for Cirrhosis of the Liver.—The work of Hoagland, Ralli, and others in the United States on cirrhosis of the liver treated by intravenous injections of crude liver extracts has been closely followed in Finland where two studies of this problem have been undertaken by Dr. Gustaf Østling and Dr. Erik Adlercreutz respectively. The first tests were not as encouraging as the more recent ones. A crude liver extract called neoheptomin did not at first contain much vitamin B₁₂ but the later batches contain a large amount of this vitamin. Both these studies are published in *Nordisk medicin* for Nov. 26, 1953, and although Østling's is chiefly concerned with general principles and a review of the literature, the study by Adlercreutz deals

with concrete experiences in Helsingfors, where about 30 patients with hepatic disease have been given this treatment. He is chiefly concerned with 10 of these patients in whom the response to intravenous injections of neoheptomin was most instructive. Eight of these patients had Laennec's cirrhosis. Adlercreutz notes that admission to a hospital, with its attendant rest and dietetic treatment, often by itself effects great improvement and so obscures the issue. In 8 of the 10 patients, however, the marked diuresis that occurred soon after the intravenous injections were started pointed to their being effective in themselves. In one patient ascitic fluid disappeared completely, but the most striking effect was the improvement in the patient's general condition. In two patients the injections had to be discontinued for a week or more because of fever, but after this interval the treatment was resumed without any further complications. To avoid a sense of heat in the face during the injections it was found desirable to give them very slowly. Adlercreutz was puzzled over the character of the active principle in crude liver extracts, and he has found no great difference of potency in the original neoheptomin, which was poor in vitamin B₁₂, and that of the later batches, which contained more of this vitamin. He also could find no marked difference of effect resulting from varying the size of the doses. This treatment may prove to be a valuable auxiliary to preoperative and postoperative treatment. In his more recent cases Adlercreutz has found it desirable to reduce the chances of a violent reaction by giving neoheptomin by drop infusion with 100 to 200 ml. of a glucose solution.

ISRAEL

Side-Effects of Penicillin.—In the fall of 1953 in a four week period 13 cases of cutaneous reaction due to penicillin were observed by I. Katzenellenbogen of the Central Department for Skin Diseases of the Workers' Sick Fund in Jerusalem, as reported in the *Harefuah*, Dec. 15, 1953. Seven men and six women aged 17 to 47 were treated. All but two previously had received penicillin; four by injection and seven by ointments and lozenges. In three, papulovesicular eruptions developed on the palms, soles, and genitocrural regions. The eruption appeared 24 to 36 hours after the first injection. Three patients presented a generalized urticaria, appearing between 7 and 10 days after penicillin treatment and lasting from 7 to 14 days. In seven patients a combination of an immediate and delayed reaction occurred, beginning a day or two after the injection with a delayed serum sickness developing 10 to 17 days later. In one patient, with no previous history of fungous disease, a severe papulovesicular rash appeared on the palms, soles, and axillary and genitocrural regions and was preceded by perleche and an erythematous rash on the chin. No fungus was found either microscopically or by culture. Intradermal tests of sensitivity to penicillin and trichophytin in this case were positive. In two patients the eruption occurred after a single injection, the local reaction appearing after 24 hours and generalized urticaria with angioneurotic edema 17 days after the injection. In four patients otolithic vertigo was observed with alteration of the caloric reaction. In one patient with a severe delayed serum sickness cortisone relieved the polyarthritis, the high fever, and the urticarial rash, without influencing the vertigo. In the same patient an eruption developed on previously tanned parts of the body.

Seven of 11 intradermal tests with 2,000 units of crystalline penicillin were positive, but patch tests with procaine penicillin and crystalline penicillin were negative in all patients. Only 2 of 11 tests with trichophytin were positive. The Prausnitz-Kustner reaction was positive in one of three patients tested. Dermographism was observed in all urticarial cases; hyperhidrosis, only in two.

Possible causes of so many penicillin reactions in a short period include (1) previous or currently existing mycosis, (2) indiscriminate use of penicillin ointment, lozenges, etc., (3) the allergic condition of the patient, and (4) the brand of the drug. The author recommends avoiding the local use of penicillin or its injection without proper indication. It is suggested that in suspected cases antimycotic and antihistaminic treatment be given at the same time as the penicillin injections. Cortisone was helpful in severe cases of delayed serum sickness.

Scholarships for Medical Students.—The central committee of the Medical Association proposes to maintain 10 scholarships in the amount of 300 Israeli pounds per annum each, out of contributions from physicians all over the country. This undertaking was prompted by both the difficult economic position of the students already studying in institutions of higher learning and the fact that the number of young physicians is extremely small compared with that of older ones. In several branches of medicine, there is a danger that in 5 or 10 years a patient may have to wait several months for a tonsillectomy or an orthopedic operation. Members of the Workers' Sick Fund have already been queuing up six months or longer for such operations. At the end of 1952 about 48% of all physicians in the country were over 52 years old, while the number of physicians under 36 years of age did not exceed 12%. The position is particularly acute in specialized branches; about 65% of the dermatologists, 60% of the radiologists, 62% of the ophthalmologists, 52% of the psychiatrists and neurologists, 50% of the otolaryngologists, 54% of the gynecologists, 52% of the pediatricians, and 51% of the internists are 50 years old or over. Only 8% of the otolaryngologists, 10% of the dermatologists, 11.5% of the radiologists, 11% of the ophthalmologists, 19% of the psychiatrists and neurologists, 22% of the pediatricians (mostly women), 16% of the gynecologists, 17% of the internists, 23% of the general practitioners, and 25% of the surgeons are under 40 years of age.

Since the establishment of the state of Israel in 1948, the population of the country has more than doubled, but owing to the composition of the mass immigration, which has derived chiefly from depressed countries, only 1,008 physicians have entered the country during this period. These now constitute 29.4% of the total number of physicians in Israel. Only 106 physicians have come from Egypt, Tunis, and other parts of Africa. It is encouraging, however, that most of the immigrating physicians have been young. Of the 684 physicians in the country who are not more than 41 years of age, 587 immigrated to Israel after the establishment of the state.

TURKEY

Idiopathic Anemia.—In *Dirim*, vol. 28, no. 3, Prof. Zeki Hakki Pamir and Dr. Cavit Sökmen described a case of idiopathic aplastic anemia. Of 4,826 patients admitted to Professor Pamir's clinic from 1946 to 1952, 228 had blood diseases. This first patient with idiopathic anemia seen in the clinic was a 17-year-old girl who, on admission, was very pale and complained of weakness, headache, palpitation, and bleeding of the gums. Following injury, external hemorrhage was arrested with difficulty. The patient weighed 56 kg., had a regular pulse rate of 92, and a blood pressure of 105/75 mm. Hg. Her liver and spleen were soft and of normal size. She had a cardiac souffle, bleeding of the gums, and ecchymotic spots on the skin. Her gastric secretion was normal. Her parents and three siblings were in good health. The coagulation time was 8 minutes, the bleeding time 30 minutes, the erythrocyte count 1,540,000, and the leukocyte count 3,000 per cubic millimeter, with 71% lymphocytes, 25% immature forms, 2% eosinophils, and 2% monocytes. The hemoglobin level was 5.5 gm. per 100 ml.; the thrombocyte count was 11,620; and there were 1.16% reticulocytes. The myelogram showed 45% lymphocytes, 18% normoblasts, 9% myeloblasts, 9% transitional cells, 8% monocytes, 5% macroblasts, 4% immature forms, and 2% reticulocytes. Results of the epinephrine test for hypersplenism and the blood plasma-modium, Wassermann, and urobilinogen tests were normal. Results of the bilirubin test of the blood by the direct method were normal and by the indirect method revealed 0.04 mg. per 100 cc. Iron and liver extracts, vitamin B₁₂, folic acid, and cortisone did not benefit the patient who during her 110 days in the hospital was given seven blood transfusions. Following a transfusion the erythrocyte count increased to about 2 million cells per cubic millimeter, but decreased again after one week. The patient refused splenectomy and left the hospital.

CORRESPONDENCE

DECELERATION AND THE MOTOR CAR

To the Editor:—In this age of increasingly rapid transportation, the one hope of survival is the control of deceleration. In a paper appearing in 1946 Hugh DeHaven stated, "Up to the present, aircraft have been built solely to fly, not to crash. This single approach and design has been costly in the past and is no longer acceptable in military aircraft where a few pounds of extra weight to give crash protection has been an important concession." The modern military aircraft is built around a safety island. The wings, tail, and motor may all separate but this island remains intact and will resist impacts beyond 40 G. In this island the personnel are fastened with harness and belts designed to withstand 40 G. or more. Personnel survival in airplanes so constructed is many times greater than in the type of planes flown in World War II.

On our highways, too, we must learn to control rapid deceleration. As the speeds of motor cars have increased we have progressed through brakes on the rear wheels, four wheel brakes, and now we have reached the point of diminishing returns as far as deceleration is concerned. I have heard two motorists state, "You sure have to be careful with these power brakes, I threw my wife into the windshield twice until I learned to use them." In other words, the potential stopping power of power brakes cannot be utilized because the motor car manufacturers have not installed devices to keep the passengers in place when modern brakes are used. Where the aviation industry has met the problem with boldness and originality, the motor car manufacturers have done almost nothing to protect the persons riding in motor cars when they must decelerate rapidly. We have lost between 30,000 and 40,000 lives on our highways each year since 1915, and the number of injuries, ranging from minor to the most disabling, number over one and one-half million each year. Is this inevitable? Are we who made the machine necessarily a victim? Let us consider this problem a moment. When a motor car hits a pedestrian, that victim is hurt, his injury is immediate. The traffic engineers must increasingly separate the streams of motor traffic from pedestrian traffic just as we have at long last separated motor traffic from the railroad train. On the other hand, when two motor cars collide or when a motor car meets a fixed obstruction, no one is hurt. The bridge abutment is dented and the front of the motor car is bashed in, but the safety island in the center of the car is intact, no one is hurt. The forces have all been applied to inanimate objects. Not until the occupants began slamming around inside the car or hurling themselves against objects outside the car do they receive injury. Can these injuries be prevented? In accidents of comparable degree affecting modern military aircraft, the personnel walk away with hardly a scratch. In stock car races the drivers put their cars into worse spills than often occur on the highway, and regularly they step out of the car, wave to the crowd, and walk away. Mr. William W. Harper describes it in phrases of the utmost clarity: "Let us assume that a vehicle collides with a solid fixed object at a speed of 30 miles per hour. Let us assume further that the car is crushed in a distance of two feet. This means that the velocity of the vehicle has decelerated from 30 miles per hour down to zero in a distance of two feet. This represents a deceleration rate of 483 feet per second per second. Such a deceleration is 15 times the acceleration of gravity, which is 32.2 feet per second per second. This unit of gravity is called the G. For convenience, we say that the vehicle suffered a 15 G. crash. But how does the vehicle occupant behave in such a crash? At the moment of impact he has the same velocity as the vehicle. As the vehicle crashes to a full stop he continues forward at almost the same speed of 30 miles per hour and collides with the dash and windshield. By the time his body reaches those objects they are at rest, or nearly so. Assuming that the combined crushing of his body and vehicle interior will reduce his velocity to zero in a distance of two inches, he will have suffered a deceleration of almost 5,700 feet per second per second, or 176 G. Although the occupant might have survived without injury the 15 G. crash

of the vehicle, he cannot escape injury or death from the 176 G. crash of his body against the interior of the vehicle. The physics of injury tells us something which seems paradoxical: If the occupant wore the car, as he would a suit of armor, the crushing of the car exterior in a collision would absorb tremendous amounts of impact energy and protect him from bodily injury. The occupant would be spared injury unless his passenger space became extensively crushed. But for some unexplained reason the teachings of physics have never been understood or accepted by the motorist—so, rather than 'strap on' the vehicle and take advantage of its protective armor in a crash, the motorist watches the vehicle crash relatively slowly to a stop and then dashes himself violently to pieces against its interior! This makes no sense at all, but it is still standard practice after 50 years of automotive accident history."

The Colorado State Medical Society adopted the following resolution and sent it to all the motor car manufacturers in the United States and to all the other state medical societies urging them to make similar resolutions: "Whereas motor car deaths in the United States of America number between 35,000 and 40,000 annually and motor car injuries number about one and a half million annually; and whereas there seems little likelihood of any great reduction of motor accidents in the near future; and whereas studies by physicians and physicists have clearly shown that motor injuries and motor deaths can be strikingly reduced by the use of safety belts and safety shoulder straps, therefore be it resolved: That the Colorado State Medical Society will give all possible aid to those measures which will reduce the frightful mortality and injury rate resulting from the use of motor cars, and be it further resolved: That the Society hereby recommends to the motor car manufacturers of America that they equip all automobiles with safety belts to meet the specifications of the C. A. A. Technical Standard Order, T. S. O.-C22 A, November 15, 1950, and further recommends that these manufacturers provide seats, cushions, and doors which will withstand impacts of 10 to 15 G. without injuries."

Poliomyelitis took 3,300 lives in 1952. The motor car took 10 times as many. Poliomyelitis injured 14,000 persons in 1952. The motor car injured 100 times as many. Our motor car manufacturers must build the automobile to crash. An active program resulting in safety belts for every motor car occupant can save more lives per dollar than anything else we can do.

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CHLOROPHYLL

To the Editor:—I wish to reply to several points raised in this section, Oct. 24, 1953, dealing with chlorophyll. These points stemmed in part from my earlier letter on this subject in the June 27, 1953, and in part from an editorial in the Aug. 29, 1953, issues of THE JOURNAL.

I paid commercial chlorophyll derivatives the compliment of being pheophytins or pheophorbides. This placed them nearer in structure to chlorophyll than they actually are. It now develops that in reality they consist of chlorin e and rhodine. These compounds are more broken down than pheophorbides in that one of the five rings, which constitute the normal structure of chlorophyll, has been opened. In this, by the way, Dr. Westcott was misled when he said that "The removal of magnesium from 'chlorophyllin' does not lead to pheophorbides but to chlorins"; the removal of magnesium does lead to pheophorbides and the chlorin results only from an additional breakdown reaction by alkali (Fischer and Stern, 1940). The commercial "derivatives," therefore, have had removed from them the magnesium, the phytol, and the methyl alcohol; in addition one ring has been broken and an atom

of copper has been added. It follows that the term chlorophyllin, still less chlorophyll, should no longer be applied to these materials. They should be called what they are, namely copper chlorins. It is as though one were to split the molecule of vitamin B into its two constituent parts, break off the side-chain, substitute the sulfur atom for something else, and then market the material as "vitamin B derivative." I think most nutritionists would agree that such nomenclature would be misleading and dangerous.

Dr. Langley says I ignored a paper he presented at the Federation meetings in April. My letter was written on Feb. 16. I now have certain criticisms of his paper; they are as follows. In the first place, hydrogen sulfide-air-water mixtures are notoriously unstable and are oxidized to sulfur at a moderate rate merely on standing; the reaction is probably catalyzed by heavy metal ions, so that rigid controls would be needed to establish an effect due to copper chlorin. In the second place, the copper chlorin would contain enough copper to react chemically with an appreciable fraction of the hydrogen sulfide. Langley's data suggest that about 0.25 mM. of hydrogen sulfide reacted with 30 mg. of copper chlorin, the copper content of which is not stated. In the third place, no mention is made of comparative tests on other copper-containing compounds or on other catalysts; ferric chloride, for instance, is very active in this oxidation. Last, it does not seem probable that the oxidation of hydrogen sulfide has any close relationship to the deodorization of organic bases, such as skatole, that are not readily oxidized and contain no reactive sulfhydryl group.

These considerations raise the problem of what deodorization really means, in a biochemical sense. Odors that are considered disagreeable may arise from substances of extremely varied chemical constitution. Some of these can be oxidized, some can perhaps be adsorbed on active surfaces, and some can perhaps be precipitated or removed in other ways. A given substance, therefore, might well deodorize chemicals of a certain type and yet be quite unable to affect others. The idea of a general deodorant is difficult to justify since no general reaction is involved.

I must say that it is interesting that responsible workers such as Harrison and Langley are now trying to obtain evidence that copper chlorin does actually deodorize. It would have been better to have done this first, before putting the material on the market. Usually research on the value of a therapeutic agent is done before, rather than after, its sale to the public.

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HEMOPHILIA AND CLOTTING TIME

To the Editor:—The findings of Brinkhous and his associates (Newer Approaches to the Study of Hemophilia and Hemophiloid States, *J. A. M. A.* 154:481 [Feb. 6] 1954) that hemophilia may range in intensity from severe to subclinical, that the clotting time may be normal in the mild type, and that the antihemophilic factor appears to remain fairly fixed in any one patient with hemophilia confirm our earlier observations, the importance of which we have repeatedly emphasized (*Pediatrics* 3:312 [March] 1949; *Am. J. M. Sc.* 223:401 [April] 1952). They likewise stress the difficulty of diagnosing the mild type of hemophilia. Among the tests they employ is a one stage prothrombin time of serum, a test slightly modified from the original that I developed and reported in 1947. Recently, we described a new test that we have designated as the thromboplastinogen activity time (T. A. T.). (Quick, A. J.; Stapp, W. F. and Hussey, C. V.: *J. Lab. & Clin. Med.* 39:142 [Jan.] 1952). In a series of over 100 persons with hemophilia, we have found this test reliable, even when the disease is exceedingly mild. The procedure has the added advantage of great simplicity.

While it is the prerogative of an investigator to devise his own schemes, outlines, and classifications, one may, nevertheless, question whether a condition such as labile factor deficiency should be shifted from the category of hypoprothrombinemia and pseudohypoprothrombinemia to the hemophiloid group and be named hemophiloid state A as Brinkhous and his associates propose. In the past, it has been convenient and helpful to the

clinician to divide the hemorrhagic diseases into those with a prolonged and those with a normal prothrombin time. Characteristically, hemophilia and hemophilia-like conditions have a normal, while labile factor deficiency has a prolonged prothrombin time. In any consideration of hemophilia-like states, the disease produced by a circulating anticoagulant seems to warrant not only inclusion but an important position in the classification. We have obtained fairly conclusive proof that the anticoagulant is an antithromboplastin and that the condition, therefore, may be called antithromboplastinogenemia. The disease is important, first, because it is easily mistaken for true hemophilia and, second, because it does not respond to transfusion even of fresh blood. While the newly reported aberrant types of hemophilia are still mostly ones of academic interest, antithromboplastinogenemia presents a problem that any clinician may be confronted with unexpectedly.

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SANATORIUM TREATMENT FOR TUBERCULOSIS

To the Editor:—Is sanatorium treatment for pulmonary tuberculosis necessary? The current trend in the treatment of pulmonary tuberculosis is away from the use of sanatoriums. Two hopes are responsible for this; first, that drug therapy will prove to be a specific cure for tuberculosis and, second, that bed rest is either no longer needed or can be taken as well at home. It is already quite clear that the first of these hopes is unfounded. Even the most complete program of chemotherapy plus rest, collapse, and resection has failed to control some cases. Chemotherapy plus rest alone has likewise failed in at least 10% of those persons with moderately advanced and 40% of those with far advanced disease. The question of whether chemotherapy with or without rest will prove to be curative for favorable types of tuberculosis will require several more years of observation of initially successful cases. As regards the hope that bed rest is not needed to treat pulmonary tuberculosis, a review of our knowledge of the subject is considered pertinent.

Since it was originally introduced at the turn of the century, there has been little doubt of the value of bed rest in the general management of pulmonary tuberculosis. As time passed, its practice became standard. Its use reached a peak when 24 hours a day in bed for four to eight months or more was recommended for asymptomatic, early minimal lesions. After a half century of its use, our knowledge of how bed rest works and of how much is needed in the individual case is scanty indeed. Furthermore, because of great advances in treatment, new data on unaided bed rest will not be available. From what information we have, however, we may assume that the action of bed rest is twofold—rest and the horizontal position.

Physical rest is the most obviously effective aspect of bed rest. Rest reduces movement of the diseased lung by lowering body metabolism and oxygen requirements. Rest also probably promotes nonspecific resistance against infection, thus augmenting the bacteriostatic effect of drugs. While there can be no doubt of the importance of rest, there has been disagreement over its strictness and duration. For instance, no relationship was found between duration of modified bed rest before chemotherapy and the long term behavior of minimal tuberculosis when 589 cases were analyzed retrospectively (Mitchell: *Am. Rev. Tuberc.* 67:401, 1953). The results were superior to those observed in a similar though untreated group (Reisner and Downes: *Am. Rev. Tuberc.* 51:393, 1945). Furthermore, in comparable groups of patients with minimal disease, De Friez and associates have found results about the same with strict as with modified bed rest. Can it be that we have prescribed excessive bed rest through lack of a more specific treatment?

Maximum rest is not always attained by spending 24 hours a day in bed. Some patients are more apt to obtain physical rest in a sitting or semireclining rather than recumbent position or by mixing periods of reclining with various mild ambulant

activities. This becomes a necessity in elderly or emphysematous patients for whom strict bed rest is frequently harmful. Rest of the mind is achieved by light reading, inconsequential conversation, pleasant contemplation, or just doing nothing. Rest of the emotions requires, in particular, the avoidance of responsibilities and personal problems. Such optimum physical, mental, and psychological rest is usually not attainable in the average home but may be found in the sheltered and simplified environment of a good sanatorium.

The second bed rest factor, the horizontal position, can, of course, be accomplished in the home as well as in the sanatorium. It has been suggested that the pulmonary circulation in the upper lungs may be virtually nil in the upright position; poor circulation adjacent to well-ventilated alveoli thus produces an alveolar environment rich in oxygen and poor in carbon dioxide, known to be favorable to the growth and multiplication of tubercle bacilli (Dock: *Am. Rev. Tuberc.* 53: 297, 1946). This concept has now been supported by Scott in animal and by Martin, Cline, and Marshall in human experimentation. The hypothesis that oxygen lack favorably influences a tuberculous lesion is supported by the observation that persistence of air-containing cavity has been associated with most failures of modern chemotherapy. Furthermore, Wright Place, and Princi have observed that there is 10 to 40% less air in the lung in the recumbent than in the erect position, making the recumbent position a minor bilateral lung collapse.

Perhaps the most vital contribution made by the good sanatorium today, and not always clearly recognized, is the education of the patient. The patient who is put to bed in a sanatorium is first given encouragement and hope; in addition, he is taught respect for a relapsing and contagious disease, a respect made necessary by the undue optimism generated, in particular, by the lay press. Day after day physician and nurse will be able to impress him, individually and in groups, with the necessity of acquiescing to his disease, at least temporarily, and, in appropriate cases, of managing his later life in accordance with his condition. Above all, the patient is impressed with the importance of taking for a long period, and without interruption, drugs that not infrequently cause unpleasant side-reactions. These reactions, whether hypersensitivity, toxicity, or intolerance, have led patients or their physicians to stop or interrupt the use of one or more drugs, thus greatly increasing the risk of loss of benefit and the emergence of drug-resistant bacilli. Unless the patient fully understands the alternative to a successful outcome of treatment, he cannot be expected always to cooperate in a prolonged, often tiresome and unpleasant routine. The time required for this education is determined more by the personality and intelligence of the patient, than by the nature and extent of the disease. As evidence of the truth of what he is taught, the patient will see around him other patients who have benefited by their training and still others who have failed to control their disease through lack of it. It is quite likely that this contact with other patients, or the knowledge gained by experience, so to speak, is the most important aspect of sanatorium treatment today. It is for these reasons that a new patient can seldom be educated as effectively in bed at home or in a physician's office, even when the physician has a thorough and up-to-date knowledge of tuberculosis.

A final but important point is segregation of an infectious case of tuberculosis, still an important public health consideration. Most new patients, when properly treated, will be non-infectious in from one to six months after starting treatment, but not all. And good cough and expectoration habits can be taught most effectively in "classes" and under continuous professional observation at the sanatorium.

There is the possibility that certain select but as yet undefined patients may not require rest because of modern chemotherapy. A 2 to 12 month period of observation may be necessary to select these favored persons. This observation may be conducted most profitably in a sanatorium. There are others whose disease is such that we know at diagnosis that chemotherapy will not do the whole job. For such patients, as well as for indigent and custodial patients, sanatorium treatment and all its adjuncts are as necessary now as ever. Whatever the prognosis seems to be, however, a period of education and orientation is important to all new patients; this is accomplished

best in the sanatorium. Despite drastic improvements in treatment, the sanatorium still plays a vital part in dealing with pulmonary tuberculosis.

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INTERNATIONAL HEALTH

To the Editor:—The article "Opportunities and Responsibilities of the Physician in World Affairs" by Dr. Trimble in the Nov. 28, 1953, issue of THE JOURNAL is extremely timely and acutely points up an area of new responsibility for physicians. The promotion of health abroad has become an integral part of United States foreign policy based on the concept that poverty and mass illness are interrelated. Today the United States is spending an estimated 51 million dollars on international health programs through several agencies. Organized medicine must undertake responsibilities lest health programs be developed without benefit of the best medical knowledge.

One of the foremost deficiencies is the lack of personnel adequately trained to deal with the exotic diseases. While the underlying principles governing diagnosis, treatment, and control are similar to those of temperate zones, there are considerable differences in the relative importance of these principles. For example, most of the tropical diseases depend on arthropod vectors for transmission; nonhuman reservoirs of infection exist in animals such as bats, armadillos, and crabs. It should be noted that a minimal knowledge of tropical medicine would raise the index of suspicion so that the physician would make early diagnosis of schistosomiasis, filariasis, kala-azar rather than allow long delays before the beginning of specific therapy and institution of preventive measures as happened in World War II. Even a few hours of instruction in our medical schools would go far in avoiding such happenings.

In addition to the assignment of physicians abroad for peacetime programs and the need for training in tropical diseases in case of national emergency, one is impressed with the increasing trade with tropical areas and the increasing amount of travel to and from these areas. These are some of the considerations that are giving a new importance to tropical diseases to physicians of the United States.

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TONSILS AND ADENOIDS

To the Editor:—The symposium on the tonsil and adenoid question in THE JOURNAL, Feb. 13, 1954, is a boon to those of us who cope with this problem daily and who will profit by these expert opinions. The deformity of excessively high palates with resulting nasal obstruction, although not part of this subject, is such a common basic factor in hypertrophy of the tonsils that it should be mentioned as part of the problem. Primary disease of the tonsils is not common. Tonsil enlargement is often due to neutralizing lymphatic absorption of nasal infections promoted by obstructions. In children with an allergic tendency, particularly distressing complicating symptoms are not relieved by tonsillectomy. The advantage in including nasal obstructions in this discussion is that, whether the tonsils are removed or not, when such obstruction is present early application of orthodontia procedures often lowers the nasal floor enough to separate the septum from the turbinates and give relief of symptoms.

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MISCELLANY

FEDERAL COMMUNICATIONS COMMISSION RULES REGULATING THE OPERATION OF MEDICAL DIATHERMY EQUIPMENT

In a public notice of Feb. 19, 1954, the Federal Communications Commission stated that a considerable number of medical diathermy machines that do not comply with its rules are still being used by doctors, or other persons, who either are not aware that they are violating the law or do not appreciate the compelling reasons that forced the commission to adopt its present rules governing the use of medical diathermy and other types of industrial, scientific, and medical equipment.

WHY IS IT NECESSARY TO COMPLY WITH THE COMMISSION'S RULES?

Some of the harmful effects that can result from diathermy machines that radiate excessively are indicated below:

National Defense.—It has been conclusively demonstrated that both planes and missiles can be guided to their targets by following radio signals. Because of that fact, the United States has instituted a comprehensive program known as CONELRAD (CONtrol of ELectro-magnetic RADiation), which is designed to minimize the usefulness to an enemy of radio signals originating in this country. A CONELRAD program for the control of radio broadcast stations during possible air raids is already in effect. Since planes can also utilize signals emanating from excessively radiating diathermy machines, it may be necessary to put such a program into effect with respect to such equipment, particularly if equipment of this type that radiates excessively remains in use.

Interference to Safety Radio Services.—Radio is of vital importance to safety. Radio is not only used for direct communication between planes and between air and ground but as a navigational aid, particularly when visibility is limited. Radiation from diathermy equipment on frequencies outside of the assigned bands is a potential hazard to both aeronautical communication circuits and to airplane landing systems. Among other important safety services are the Police Radio Service and the Fire Radio Service. In order to avoid serious accidents and the loss of life and property, it is essential that radiation from diathermy machines be confined to assigned bands or be adequately suppressed. That means that only equipment that complies with the commission's rules should be used.

Interference to Broadcast Reception.—One common type of interference from medical diathermy equipment concerns the reception of aural and television broadcast programs. Unfortunately, many doctors, as well as other users, apparently believe that this is the only interference that their diathermy equipment is capable of causing. For the benefit of operators of medical diathermy equipment, the commission has answered the following specific questions: "Why should I worry if I have received no complaints about my equipment?" The fact that a physician or other person has not received a complaint is not a guarantee that his diathermy machine is not causing objectionable interference, perhaps many miles away. The only practical way of knowing that diathermy equipment is not causing interference is through the use of type approval or certified equipment.

"If my equipment was legal before June 30, 1953, why is it dangerous now?" Medical diathermy equipment that radiates excessively has been an interference problem for a long time. The commission's rules initially became effective June 30, 1947; however, to enable the owners of existing equipment to amortize their investments, the commission gave the owners and users of equipment manufactured and assembled before July 1, 1947, a total of six years, until June 30, 1953, within which to comply.

"What should the owners and operators of noncomplying equipment do?" The owner or operator of a medical diathermy machine that does not comply with the commission's rules should do one of the following things: (a) Obtain a machine that has been type-approved by the commission and that bears a type approval number. A certificate of type approval means

that the commission's engineers have tested a prototype of the machine and have found that it complies with the requirements. Type approval is not an absolute guarantee that the machine will not cause interference, but it does indicate that, under normal conditions of installation and operation, the machine will not do so. (b) Have a competent engineer certify that the old type machine is capable of operating in accordance with the commission's rules. Such certification is accomplished in the manner specifically prescribed in the commission's rules; however, the owners of older diathermy machines are cautioned that the certification of such machines will usually require extensive modification or shielding by a skilled engineer, as well as the use of special field intensity testing equipment, and the rules also require that the certification must be renewed every three years. In many cases the certification process may prove more costly than the purchase of a new type-approved machine.

"How does the commission propose to enforce its rules?" It is hoped that when these facts are brought home to the users of illegal equipment, particularly those that relate to the dangers that may result from the use of such machines, the commission will receive a maximum degree of cooperation in the elimination of the illegal equipment; however, because of the serious potential dangers involved in the continued use of illegal equipment, the commission does not intend to rely solely on an educational campaign. It intends to use every means at its disposal to identify and eliminate the use of any equipment that does not comply with its rules.

The commission warned users of illegal equipment that the commission has available to it, and intends to follow, the following enforcement procedures wherever appropriate: (1) the issuance of cease and desist orders, enforceable in the courts, directed to the users of the illegal equipment; (2) application to the courts for injunctions against the use of illegal equipment; and (3) the institution in aggravated cases, of criminal proceedings against the operators of illegal equipment.

MILLIEQUIVALENTS

For many medical men who qualified more than a decade ago milliequivalents share some of the mystery that irrational numbers hold for the nonmathematical. But, simple units of measurement that they are, they have largely replaced such traditional though flexible units as milligrams per 100 ml. to record concentrations of ions. While readily convertible to metric units, their special features make them preferable for the estimation of the electrolytes of the plasma, which is becoming a commonplace laboratory investigation, essential for carrying out rational replacement or maintenance therapy of patients suffering from electrolyte depletion.

Milliequivalents are units of measurement no less than are the other, more familiar terms of metric weight; but they are units with this difference, that instead of being related arithmetically to other units of weight or volume within the metric system they imply a chemical relationship between the various ions under consideration. Thus, one milligram of sodium is not related to one milligram of potassium or one milligram of chloride except in so far as these amounts weigh the same, but one milliequivalent of sodium is chemically equivalent to one milliequivalent of potassium and to one milliequivalent of chloride and to one milliequivalent of bicarbonate, and in fact to one milliequivalent of any substance, although the actual weights of these amounts are not the same when expressed in milligrams. The equivalent weight of a substance is a chemical term defining that weight of the substance that will combine with or displace one gram-atom of hydrogen. A milliequivalent weight of a substance is its equivalent weight divided by 1,000, that is, the weight of the substance that will combine with or displace one milli-gram-atom of hydrogen. Adapting an old axiom, things that are equivalent to the same thing (in this case hydrogen) must be equivalent to one another, and it is this that justifies the use of the term milliequivalent in clinical chemistry today. Expressed in these terms, fluctuations in concentrations of electrolytes—not only in plasma but also in urine and gastrointestinal contents—come to have some meaning in relation to one another. Calculation of concentrations expressed in milliequivalents per liter from those in milligrams per 100 ml. is done by

multiplying the milligrams per 100 ml. by 10 to bring the concentration to milligrams per liter, and then dividing by the equivalent weight of the ion in question. The equivalent weight of the monovalent ions sodium, potassium, and chloride is equal to the atomic weight, namely, 23, 39, and 35.5 respectively. Some laboratories report the concentration of chloride in the form of sodium chloride, in which case the concentration in milligrams per 1,000 ml. must be divided by 58.5 and not by 35.5. Special factors have been calculated for the conversion of bicarbonate from volumes per cent and protein from grams per cent to milliequivalents per liter.

BUSINESS PRACTICE

The following material is based on a public relations manual issued by the Public Relations Department of the American Medical Association.—Ed.

THE PHYSICIAN AND HIS RECEPTION ROOM

Although many persons speak nostalgically of the "old family doctor"—the combination physician, father-confessor, and friend—few would entrust their care to him today, for often he had more sympathy than skill to offer. It is from fond memories of the horse-and-buggy doctor, however, that people draw their conception of the ideal physician. To the patient, a good physician is "gentle, kind, even-tempered, always available, tireless, inexhaustibly patient, everlastingly resourceful, and, up to this morning's radio broadcast, completely informed."

A good doctor-patient relationship, often termed "the most important factor in the practice of medicine," depends not only on giving people the best possible medical service but also in maintaining their confidence and friendship. Too often patients complain that doctors are cold and impersonal. The affection and friendship of the patient is won through giving him frank and friendly attention and relieving pain and easing the mind but, above all, by treating patients as persons. Patients want to feel they are important to the doctor as persons, not just as clinical cases. Says one physician, "Be glad to see patients, even if you are a little tired. Be frank; be prompt; and never give the impression that you are doing the patient a favor." Skill is no substitute for kindness. Cold, calculating science can never replace the warmth of a sympathetic personality. Healing the body is not enough. If a physician is to meet his medical responsibilities fully, he must comfort the soul, too. This is not the task of the psychiatrist alone. It is the plain duty of every practicing physician.

A patient may get his first impression of a physician as he enters the reception room. It is not necessary to hire an expensive decorator to redo the waiting room nor is it necessary to spend a great deal of money on furniture, carpeting, or drapes. The reception room should be decorated in cheerful harmonious colors, bright but not gaudy. A neat, comfortable, and attractive reception room shows patients that their doctor has their welfare at heart. In order to cut tensions produced by waiting to a minimum, the reception room should be tastefully and attractively decorated. The furniture should be comfortable and adequate for the peak number of patients to be accommodated each day. It should be arranged for reading or conversation. The room itself should be well ventilated and the temperature regulated for comfort. If possible, storage space for coats, hats, rubbers, and umbrellas should be provided. There should be an assortment of up-to-date magazines and light reading material, preferably in leather-bound covers to keep them from becoming prematurely dog-eared. The reading light should be adequate. Some physicians put up bulletin boards presenting information on health, education, and other interesting subjects. Others place writing desks in the reception room for patients' convenience or arrange a children's corner with small furniture and children's toys. Some physicians have found television helpful in keeping children occupied. Pictures, posters, plants, or cut flowers lend added charm to a reception room. A lighted aquarium or piped-in restful music may provide that extra touch that keeps patients loyal to their doctor.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Expert Witnesses: Cross-Examination Relating to Fee Charged for Testifying.—This was an action for damages for injuries sustained by a passenger in a bus-truck collision. From an unsatisfactory judgment for the plaintiff in the trial court, the plaintiff appealed to the superior court of Pennsylvania.

The plaintiff recovered a verdict in the trial court, but it was too small. He appealed, contending that the meager verdict was the result of restrictions that the trial court placed on the cross-examination of one of the defendant expert medical witnesses.

Under cross-examination of the physician, the plaintiff developed the fact that the physician had testified in many cases over a long period of time, for the defendant company and others, although he skillfully evaded exact numbers, which he called "statistics." The physician testified that he had received \$50 for his pretrial examination of the plaintiff, and to the question, "What is your arrangement to be paid for testifying here?" he answered, "There are no arrangements made." He was then asked "How much do you expect to get paid for testifying here today?" The trial court sustained an objection to this testimony.

In a prior case the Supreme Court of Pennsylvania had said that it was pertinent for the jury to know what arrangements the doctors had made or were contemplating making for compensation for their services in the case and that the trial judge's refusal to require them to testify under oath and subject to cross-examination constituted a substantial error that made necessary the granting of a new trial. In the present case, to justify his ruling, the trial judge said: "A contemplated mutual arrangement and an *ex parte* expectation are very different things, for a man may expect more than he gets. If it be argued that the word 'expect' may be interpreted either as a mere hope or as reliance upon something certain but still in the future, it is our view that the latter meaning was eliminated by the doctor's statement that no arrangement had been made." On appeal, the judge said that apparently, under the opinion of the trial court, if the counsel had inquired concerning a contemplated arrangement instead of an expected arrangement his question would have been free from objection. The difference between the two words, said the court, is minute and vague. Both words describe "subjective mental processes"; both connote the mental state of looking forward; contemplation, as here employed, signifies a purpose in respect to the future; expectation is more than a bare hope, implying a high degree of certainty that a future event will occur. The prior Supreme Court decision, which used the expression "arrangements the doctors had made or were contemplating" clearly permits exploration of the future as well as of the past, of recompense that will be claimed as well as an express pre-trial agreement to pay a stipulated fee. Continuing, the court said, however, that the logic of words must yield to the logic of realities. In this case a physician with 32 years of experience as a court witness was testifying. His experience and prestige have undoubtedly created a demand for his services that he is able to sell in a seller's market. In all probability he is not obliged to negotiate for fees; he commands them; and serves only those who meet his terms. It would be in keeping with the practice of other professional witnesses if he indeed fixed his fees unilaterally and *ex parte*. Nevertheless, the witness, drawing upon his experience and his practice in charging and receiving fees, could have stated an estimate of the monetary value he placed upon his services; that is to say, what he expected to charge and receive and, even if he could not, the question itself was not outside of the "reasonable limits" of interrogation. The amount of an expert's fees, whether stipulated in advance of a trial or determinable in the future, has a direct and vital bearing upon his credibility, his interest, bias, or partisanship. Accordingly the judgment was reversed and a new trial awarded. *Reed v. Philadelphia Transportation Company*, 90 A. (2d) 371 (Pennsylvania, 1952).

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Internal Medicine, Chicago

93:1-166 (Jan.) 1954

- Clinical Usefulness of Determination of Circulating 17-Hydroxycorticosteroid Levels. G. T. Perkoff, A. A. Sandburg, D. H. Nelson and F. H. Tyler.—p. 1.
- Function of Pancreatic Juice and of Bile in Assimilation of Dietary Triglyceride: Review. J. H. Annegers.—p. 9.
- *Efficacy and Toxicity of Oxytetracycline (Terramycin) and Chlortetracycline (Aureomycin): With Special Reference to Use of Doses of 250 Mg. Every Four to Six Hours and to Occurrence of Staphylococcal Diarrhea. M. Finland, M. E. Grigsby and T. H. Haight.—p. 23.
- *Infections Occurring During Antimicrobial Therapy. J. W. Hofer and G. M. McCaskey.—p. 44.
- Successful Treatment of Intestinal Moniliasis with Fatty Acid-Resin Complex. I. Neuhauser.—p. 53.
- *Use of Artificial Kidney in Chronic Renal Disease. F. Goldner, G. L. Gordon and L. E. Danzig.—p. 61.
- Alcaptonuria and Ochronosis: Report of Five Cases Occurring in an American Family. R. L. Black, J. F. Lowney and P. M. Duffy.—p. 75.
- Alpha Cells of Pancreas—Morphologic and Physiologic Considerations: Review. B. W. Volk, S. S. Lazarus and M. G. Goldner.—p. 87.
- The Two-Component Mucous Barrier: Its Activity in Protecting Gastrointestinal Mucosa Against Peptic Ulceration. F. Hollander.—p. 107.

Oxytetracycline and Chlortetracycline.—An analysis is presented of the clinical results obtained in 520 patients treated with either oxytetracycline (Terramycin) or chlortetracycline (Aureomycin) for a large variety of diseases, but chiefly for infections of the respiratory or urinary tract. Most of the patients were given oral doses of 250 mg. every four hours or every six hours, but 37 of them received 500 mg. doses at similar intervals. The incidence of toxic effects accompanying the different dosage regimens was noted, and special attention was paid to the occurrence of staphylococcal diarrhea. Favorable clinical and bacteriological results were obtained with each of the dosage regimens in patients with acute infections due to susceptible types of organisms. The results with each of the two antibiotics were, on the whole, fairly comparable, considering the relatively small number but wide variety of diseases treated and the number and character of the underlying complicating factors. No conclusions could be drawn with respect to the relative efficacy of the dosage regimens employed as compared with the larger doses that had been used previously. The most frequent toxic effects were those involving the gastrointestinal tract. The frequency of the occurrence of gastrointestinal complications, particularly of severe watery diarrhea, was significantly greater in the patients who were treated with oxytetracycline than in those who received chlortetracycline in the same dosage. With each of these antibiotics diarrhea was about twice as frequent among patients who received 250 mg. doses every four hours or 500 mg. doses every four or six hours than among those given 250 mg. every six hours. Fecal cultures were made for 38 of the patients in whom diarrhea developed during oxytetracycline therapy and for 22 of those in whom it developed during chlortetracycline therapy. Hemolytic coagulase-positive strains of *Micrococcus* (*Staphylococcus*) *aureus* were found as the only or predominant organism in the fecal cultures of 27 of the former and 4 of the latter. Diarrhea subsided fairly rapidly, and the normal flora returned

in the stools in most of the patients when the oral administration of the offending antibiotic was discontinued, and only general supportive measures were instituted promptly after the diarrhea began; this improvement occurred without relation to the subsequent use of other specific antibacterial agents or to the susceptibility of the fecal staphylococci to those agents.

Infections During Antimicrobial Therapy.—The authors present six case histories of patients in whom secondary infections developed during treatment with various antibiotics for primary infections. In each patient the relapse was caused by a micro-organism that was resistant to the particular drug used. Superinfections of this kind occur in a small but significant number of persons receiving antimicrobial therapy. There are three basic types of mechanisms by which superinfection can result. 1. The drug may so alter the natural bacterial flora of the body that insensitive microbes become numerically predominant. If these initially scarce micro-organisms have the ability to invade the blood stream or specific tissues, a new infection may result. 2. The drug may actually stimulate bacterial growth, according to the Arndt-Schulz law that poisons in small doses are stimulants. This phenomenon has been demonstrated in vitro with penicillin. Garrod has shown that there are appropriate stimulating concentrations of penicillin for both sensitive and resistant species of bacteria. 3. The drug may bring about an alteration of certain tissues, as in clinical vitamin deficiency states, diarrhea with enterocolitis, and, reportedly, pseudomembranous enterocolitis.

Artificial Kidney in Chronic Renal Disease.—The artificial kidney is an important auxiliary in the treatment of chronic renal insufficiency. The four main indications for its use are (a) to obtain prolonged remissions in selected symptomatic patients, (b) to prepare patients for indicated surgical procedures, (c) to maintain patients in whom the delicate state of equilibrium in renal function is temporarily upset, and (d) to delay the progress of physiological abnormalities and the advent of more pronounced symptoms in relatively asymptomatic patients; more experience is needed to settle this last point. The factors that appear to predispose to a prolonged remission are (a) a general symptomatologic and chemical "plateau"; (b) the absence of severe generalized vascular disease, even though hypertension is present; (c) the absence of overwhelming infection or septicemia; (d) polyuria, and (e) a predialysis serum sodium level above 130 mEq. per liter. Favorable chemical responses were noted after 20 dialyses in 15 patients who had far advanced renal insufficiency of varying cause. After all 18 dialyses in which evaluation was feasible, the symptomatologic response was favorable. Short remissions occurred after 13 dialyses and long-term ones after 7 dialyses. The average duration of the short remissions was slightly longer than 3 days; the average duration of life after the 13 dialyses was 21 days. The longest of the long-term remissions was 104 days. One of these remissions lasted only 20 days, at which time death caused by myocardial infarction and peritonitis occurred; at the time of death symptoms associated with uremia had not reappeared. Although many patients with chronic renal insufficiency have been treated with the artificial kidney, more must be observed before any definite conclusions can be reached. It is emphasized that the series presented consisted mostly of patients in the terminal stages of their disease.

Alabama State Medical Assn. Journal, Montgomery

23:143-166 (Dec.) 1953

- Gastroscopy. A. M. Freeman.—p. 143.
- Gastric Resection for Complicated Peptic Ulcer. J. W. Donald and J. G. Donald.—p. 146.
- Problem of Headache: Approach to Classification and Treatment. W. G. Haynes.—p. 150.

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Titles marked with an asterisk (*) are abstracted.

American Journal of Clinical Pathology, Baltimore

23:1187-1296 (Dec.) 1953

- Liver Lesions Following Intravenous Administration of Polyvinyl Pyrrolidone (PVP). E. A. Gall, W. A. Altemeler, L. Schiff and others.—p. 1187.
- Benign Acquired Toxoplasmosis with Subsequent Pregnancy. M. P. Stanton and H. Pinkerton.—p. 1199.
- Allergic Granulomatosis Associated with Visceral Larva Migrans: Case Report with Autopsy Findings of Toxocara Infection in Child. R. Brill, J. Churg and P. C. Beaver.—p. 1208.
- Hypersensitivity to Bee Sting: Report of Fatal Case and Review of Literature. J. R. Schenken, J. Tamisela and F. D. Winter.—p. 1216.
- Anti-Jk*: Three New Examples of Isoantibody: Frequency of Factor in Caucasians, Negroes and Chinese of New York City. R. E. Rosenfield, P. Vogel, N. Gibbel and others.—p. 1222.
- Effect of Ethylenediamine Tetraacetic Acid on Cholesterol Metabolism in Rabbits: Preliminary Report on Effect of Parenteral and Oral Administration of Disodium and Calcium Salts. H. S. M. Uhl, H. H. Brown, A. Zlatkis and others.—p. 1226.
- Fatal Gastroenteritis Associated with Clostridium Welchii. E. Kellert and W. Meeler.—p. 1234.
- Mixed Tumor of Parotid Gland with Tyrosine Crystals in Matrix: Report of Case. W. K. Bullock.—p. 1238.
- Pathology of Anomalies of Thoracic Aorta. J. E. Edwards.—p. 1240.

American Journal of Medical Sciences, Philadelphia

226:597-718 (Dec.) 1953

- Use of Correctives in Prevention of Barbiturate Intoxication. T. Kopyani and J. F. Fazekas.—p. 597.
- Survival Rates After Myocardial Infarctions With and Without Long Term Anticoagulant Therapy. J. W. Keyes, E. H. Drake, T. N. James and F. J. Smith.—p. 607.
- Stingray Injuries: Review and Discussion of Their Treatment. F. E. Russell.—p. 611.
- *1-Hydrazinophthalazine (Apresoline) in Treatment of Hypertensive Diseases: Clinical Trial with Control Group. D. H. Merrill and K. Kenyon.—p. 623.
- Modification of Hypotensive Action of 1-Hydrazinophthalazine (Apresoline) by Priscoline, Hexamethonium and Section of Carotid Sinus and Aortic Buffer Nerves in Normal and Renal Hypertensive Dogs. J. W. McCubbin and I. H. Page.—p. 632.
- *Evaluation of Treatment in Hypertension: Effects of Cinchona Alkaloids. A. W. Seligmann, F. C. Ferguson Jr., S. Garb and others.—p. 636.
- On the Relationship of Urinary Copper Excretion to Aminoaciduria in Wilson's Disease (Hepatolenticular Degeneration). L. L. Uzman.—p. 645.
- Effect of Norepinephrine and Epinephrine on Renal Hemodynamics. L. C. Mills, J. H. Moyer and J. M. Skelton.—p. 653.
- Differentiation Between Congenital and Acquired Forms of Hemolytic Anemia: Observations on 47 Cases of Hereditary Spherocytosis and 24 Cases of Autoimmune Hemolytic Disease. L. E. Young and G. Miller.—p. 664.
- Stress Urinary Incontinence in Female: Review of Modern Approach to This Problem. J. J. Mikuta and F. L. Payne.—p. 674.
- Importance of Trypsin in Infancy and Childhood. P. W. Guilbert and I. J. Wolman.—p. 688.

Hydralazine (Apresoline) Hydrochloride in Treatment of Hypertension.—The results obtained by giving only hydralazine (Apresoline) hydrochloride to one group of ambulatory patients with hypertension were compared with those obtained by giving placebos of similar appearance to another group. The alternate patient method was used in determining the distribution of the drug and the placebo. All patients were seen by the same observer at each clinic visit, and all were apparently benefited by the regular visits to the same physician. Some lowering of the blood pressure was found in each group, but the decline in the patients receiving hydralazine was statistically more significant than that found in those given the placebos. Patients vary greatly in their response to hydralazine; of the 37 receiving the drug, 12 had a drop in diastolic pressure of 20% or more (either while supine or sitting), some showed no change, and in 2 the diastolic pressure increased. Side-effects, chief among which was an occipital headache, were common, and they were severe enough to necessitate discontinuance of the drug in 11 patients. Two of the 28 patients receiving placebos discontinued them because of headache and nausea that they felt were drug-induced. A drop of more than 20% in the diastolic pressure, while sitting, was found in only one of the patients in the placebo group. Comparison of the figures obtained in patients who have been receiving either hydralazine or the placebo for more than six months shows that the significant difference between the two groups is persistent, indicating that the drug is effective even after long-continued use. The response of the individual patient, however,

cannot be predicted. Three hospitalized patients with nitrogen retention, who were among several treated with hydralazine but not included in the study groups, appeared to be adversely affected, suggesting that hydralazine should not be given to patients with uremia.

Effects of Cinchona Alkaloids.—The long-term effect of cinchona alkaloids on the blood pressure was studied by giving quinidine sulfate, quinine sulfate, and a lactose placebo, dispensed in identical capsules identifiable only by code number, to 44 patients with long-standing hypertension. The double blind principle was used throughout the study so that neither the patient nor the attending physician knew which substance was being given at any particular time. The patients were told that the test materials were "medicine for the blood pressure" and were instructed to take three capsules a day, one before each meal. Each capsule contained 0.3 gm. of a drug, and this dosage (0.9 gm. per day) was considered to be the maximum amount of alkaloids that could be taken regularly by an unselected group of patients. Undesirable side-effects were common even with this dosage, and many patients were unable to tolerate it, especially when quinine was being given. The patients, divided into two random groups at the first visit, received courses lasting four weeks of quinidine sulfate and placebo in alternate order. At least two weeks of observation without therapy followed, and then the patients, redivided into two groups at random, were given quinine sulfate and placebo alternately in courses lasting four weeks, as before. Statistical analyses alone do not permit accurate evaluation of drug therapy in hypertension, because treatment in itself frequently produces a marked reduction in the blood pressure even of stabilized hypertensive patients. The double blind method, however, was apparently successful in controlling the nonspecific effects of therapy. Summaries of the data obtained, prepared by one who had no contact with the patients, showed that the beneficial effects apparently produced by the cinchona alkaloids on the blood pressure and symptoms of these patients were equalled in each case by those of the lactose placebo. Subjective factors proved unreliable as guides to the result of treatment; both the patients and the attending physicians expressed opinions at variance with the condition of the pressure and with each other. Hypertensive symptoms, in fact, seem to have little, if any, connection with hypertension itself.

Am. Practitioner & Digest of Treatment, Philadelphia

4:813-900 (Dec.) 1953

- Some Clinical Aspects of Disturbed Pituitary Function. E. P. McCullagh.—p. 813.
- Use of Mood Ameliorating Agents in Treatment of Psychogenic Obesity. P. Rosenberg.—p. 818.
- Diagnostic Problems of Simple Gastroduodenal Ulcer. H. B. Eisenstadt and B. B. Elster.—p. 821.
- Treatment of Angina Pectoris, Including Angina Decubitus and Status Anginosus. H. L. Jaffe.—p. 828.
- Diagnosis and Management of Lesions of Vulva. H. Packer.—p. 834.
- Cardiac Emergency Kit: Recommended Plan for Hospital Use. J. J. Silverman and M. Trudeau.—p. 840.
- Life Stress and Gastro-Intestinal Diseases. W. J. Grace.—p. 848.
- Polycythemia Vera. C. F. Stroebel.—p. 853.
- Significance of Size and Radiographic Density of Solitary Lesions in Lungs. J. R. Vivas and S. F. Crabtree.—p. 857.
- *Fibrous Adhesive Pericarditis Following ACTH Therapy in Acute Rheumatic Pancarditis: Case Report. R. F. Sheely.—p. 862.

Fibrous Adhesive Pericarditis Following Corticotropin Therapy for Rheumatic Pancarditis.—Sheely presents the case of a 10-year-old girl in whom acute rheumatic pancarditis developed after an attack of acute tonsillitis. Treatment with adequate amounts of corticotropin was followed by the development of an intractable congestive state characterized by hepatomegaly, recurrent tense ascites, and dependent edema. This congestive state typical of Pick's syndrome occurred approximately two months after institution of therapy with 800 mg. of corticotropin, at a time the patient was clinically improved, with great improvement in appetite, sense of well-being, and subsidence of toxicity. At no time during the 17 months of hospitalization was fluid in the pleural spaces or persistent clinical signs of pulmonary congestion detected in repeated physical examinations and roentgenographic studies. In the

absence of a presystolic murmur, it was the clinical impression that the patient had constricting pericarditis with resultant enlargement of the right side of the heart and portal hypertension. Necropsy revealed a dense fibrous adhesive pericarditis; there was no true mitral stenosis. This condition produced the clinical picture of a constrictive pericarditis. Although the use of corticotropin cannot be definitely linked to the pathological lesions in this case, the occurrence of Pick's syndrome two months after steroid therapy leads to interesting considerations in the light of recent observations on the effect of these steroids in other vascular conditions. Shick and others recently observed, in pathologically proved cases of periarteritis nodosa treated with corticotropin and cortisone, that massive fibrosis resulted in the involved arterioles and medium-sized arteries extensive enough to obliterate these vessels, producing infarctions in the involved visceral organs.

Bacteriological Reviews, Baltimore

17:249-338 (Dec.) 1953

Microbiologists in Transition. G. M. Dack.—p. 249.

Use of Metabolically Blocked Organisms for Analysis for Biosynthetic Pathways. E. A. Adelberg.—p. 253.

Lysogeny. A. Lwoff.—p. 269.

17:339-448 (Dec. [Supplement]) 1953

Immunization Against Poliomyelitis. T. E. Boyd.—p. 339.

Blood, New York

8:1061-1156 (Dec.) 1953

Optical Properties of Hemoglobin in Microdrepanocytic Disease. A. Ascenzi and E. Silvestroni.—p. 1061.

*Hyperglobulinemia as Cause of Hemophilia-Like Disease. I. M. Nilsson and A. Wenckert.—p. 1067.

Factor in Lungs of Anaphylactically Shocked Guinea Pigs Which Can Induce Eosinophilia in Normal Animals. M. Samter, M. A. Kofoed and W. Pieper.—p. 1078.

Plasma Factor for Platelet Adhesiveness and Clot Retraction Acceleration. J. P. Savitsky.—p. 1091.

Drowning Hemoglobinuria. C. E. Rath.—p. 1099.

Blood Volume and Molybdenum Toxicity in Rabbits. J. D. Burke, L. R. Arrington and G. K. Davis.—p. 1105.

Finding of L. E. (Lupus Erythematosus) Cells in Smears of Untreated, Freshly Drawn Peripheral Blood. B. Chomet, M. M. Kirshen, G. Schaefer and P. Mudrik.—p. 1107.

Red Blood Cell Survival Studies. G. S. Eadie and I. W. Brown Jr.—p. 1110.

Case of Erythremic Myelosis (Di Guglielmo). J. Báez-Villasenor and L. Sánchez-Medial.—p. 1137.

Hyperglobulinemia as Cause of Hemophilia-Like Disease.—Nilsson and Wenckert of Malmö, Sweden, call attention to the fact that in recent years several cases of a formerly unrecognized coagulation defect have been described. This defect is characterized by a hemophilia-like hemorrhagic state and caused by the presence in blood of a circulating anticoagulant that is active in the first phase of coagulation and that is neither heparin nor anticephalin. The first case was reported in 1940 by Lozner, Joliffe, and Taylor. Thereafter, more than 20 similar cases have been described. In 1950 the term "Hemm-körper" (inhibiting body) hemophilia was applied by an Austrian investigator. Other workers reported the presence of circulating anticoagulants antagonistic to thromboplastin or to the formation of thromboplastin in patients with true hemophilia following multiple transfusions. No clear-cut distinction can be made between these two groups. The first group comprises only genuine hemophiliacs, that is, only men, while the second includes both men and women. The authors present a case of probably familial hyperglobulinemia. A 44-year-old woman had a circulating anticoagulant, antagonistic to the initial phase of the coagulation, most likely to the antihemophilic globulin. The anticoagulant factor was separated by means of salt precipitation and by electrophoresis. It was shown to be identical with one of the patient's abnormal gamma globulin. There is no reason to suppose an isoimmunization process. The coagulation defect is, therefore, assumed to be a secondary phenomenon to the patient's probably familial protein disturbance. Dysproteinemia has been observed in hemophilia-like diseases several

times, but the etiological connection between the coagulation anomaly and the protein disease has not been previously established. On the other hand, even serious dysproteinemias seem rarely to be complicated by a circulating anticoagulant. A connection between the sedimentation rate and the coagulation of the blood was shown to be present in this patient.

Circulation, New York

8:801-960 (Dec.) 1953

Electrocardiographic Pattern of Hypopotassemia With and Without Hypocalcemia. B. Surawicz and E. Lepeschkin.—p. 801.

*Studies on Control of Hypertension by Hyphex: II. Toxic Reactions and Side Effects. J. D. Morrow, H. A. Schroeder and H. M. Perry Jr.—p. 829.

Newer Drugs in Treatment of Hypertension: I. Use of Hexamethonium Salts. H. A. Sieber, K. S. Grimson and E. S. Orgain.—p. 840.

Problems in Diagnosis and Surgical Treatment of Pulmonic Stenosis with Intact Ventricular Septum. J. W. Kirklin, D. C. Connolly, F. H. Ellis Jr. and others.—p. 849.

Orthostatic Factors in Pulsus Alternans. B. Friedman, W. M. Daily and R. S. Sheffield.—p. 864.

Effects of Papaverine upon Ectopic Ventricular Tachycardia Produced by Myocardial Infarction. A. S. Harris, A. Estandía, A. Bisteni and H. T. Smith.—p. 874.

Evaluation of Routine Serial Fluoroscopic Examinations of Heart in Postero-Anterior and Oblique Views at Specific Degrees of Rotation, with Special Reference to Angle of Clearance of Left Ventricle. M. G. Wilson, N. Epstein, H. N. Helper and K. Hain.—p. 879.

*Heart Force Effects of Sympathomimetic Amines as Basis for Their Use in Shock Accompanying Myocardial Infarction. P. C. Gazes, L. I. Goldberg and T. D. Darby.—p. 883.

Respiratory and Circulatory Studies of Patients with Mitral Stenosis. P. C. Curti, G. Cohen, B. Castleman and others.—p. 893.

Further Studies in High Fidelity Electrocardiography: Myocardial Infarction. P. H. Langner Jr.—p. 905.

Some Requirements in Equipment and Technics for Vectorcardiography. J. A. Cronvich, G. E. Burch and J. A. Abildskov.—p. 914.

Normal Electrocardiogram. C. E. Kossmann.—p. 920.

Control of Hypertension by Hyphex.—Hyphex, a mode of therapy in which hydralazine (Apresoline) is combined with hexamethonium chloride, was used for 6 to 25 months in the treatment of 258 patients with hypertension. Untoward reactions are reported. Minor unwanted effects of hexamethonium chloride, which produces a partial blockade of all autonomic ganglions consisted of orthostatic hypotension and suppression of intestinal motility with resulting constipation; blurring of vision, which occurred frequently; dryness of mouth and hypotonicity of the bladder, which were common; decreased potency or impotence in men, which was constant in the early stage but complete or partial recovery was noted in many; and cold intolerance, which was frequently observed. Minor reactions to hydralazine consisted of stuffy nose, periorbital edema, lacrimation, headache, generalized aching, and prostration in most of the patients on initiation of therapy, but these varied greatly in severity. All of these symptoms were milder and of shorter duration when hydralazine was used in combination with hexamethonium chloride, than when hydralazine was used alone. Fatal complications were observed in the form of interstitial pneumonia in five patients, uncontrolled hypotension in one, and sudden death in one. Hydralazine apparently caused arthritis and "collagen-like" disease in 16 patients and repeated febrile responses in 6. Serious obstructive phenomena caused by hexamethonium chloride in previous organic obstruction occurred in 10 patients. Of the 44 patients (17%) with untoward reactions, 8 (3%) died, 5 of interstitial pneumonia, 1 of pneumonia after parotitis, and 2 from simultaneous administration of both drugs. Despite untoward reactions and undesirable side-effects, the combined use of hydralazine and hexamethonium chloride is an effective and practical method of treating severe hypertension provided precautions are taken to minimize serious consequences, for the benefits observed clearly have outweighed the risks. Neither agent is ideal.

Treatment of Shock Accompanying Myocardial Infarction.—Of 14 patients who were between the ages of 39 and 70 and who were in severe shock accompanying myocardial infarction, 7 were treated with intravenous infusions of phenylephrine (Neo-Synephrine) hydrochloride and the others received intravenous infusions of levarterenol (Levophed). The latter was administered in a solution containing 4 mg. of levarterenol and 5% dextrose in each liter of distilled water. Phenyl-

ephreⁿ was administered in a concentration of 10 mg. per liter in two patients and 20 mg. per liter in the others. The rate of infusion flow was determined by the level of systolic blood pressure that was maintained below 120 mm. Hg in each patient except one, a known hypertensive with a blood pressure of 134/90. The rate of infusion flow ranged from 5 to 100 drops per minute. If the blood pressure remained stable with the slower flow rate, the pressor amine administration was discontinued. If shock occurred, the infusion was restarted. Twelve of the 14 patients were in congestive heart failure. Six patients in congestive heart failure treated with levarterenol recovered. Five patients in congestive heart failure treated with phenylephrine responded with an immediate rise of blood pressure, but the pressure failed to stabilize and the patients succumbed despite continuous infusions of phenylephrine. Two patients with no evidence of congestive heart failure were brought out of shock by phenylephrine. One of these patients recovered; the other died 48 hours after the phenylephrine infusion was discontinued. One patient treated with both sympathomimetic amines failed to respond to phenylephrine and was later brought out of shock by levarterenol. This patient died 18 hours after discontinuance of levarterenol therapy. Determinations of relative contractile force and arterial pressure changes were carried out after 51 intravenous injections of *l*-epinephrine, levarterenol and phenylephrine in unanesthetized dogs. Results showed, that levarterenol produced pronounced increments in heart contractile force, in addition to pressor effects in the experimental animals. The contractile force increments were of similar magnitude to those produced by *l*-epinephrine. Phenylephrine was observed to be more predominantly a pressor amine, producing only minimal changes in heart contractile force. The effect on contractile force of the heart of levarterenol is presented as a basis for the high recovery rate observed with this amine in the treatment of shock accompanying myocardial infarction, particularly in patients with associated congestive heart failure.

Delaware State Medical Journal, Wilmington

25:309-330 (Nov.) 1953

Present Status of Management of Urinary Infections. T. R. Fetter.—p. 309.

*Scrotal Diverticulum of Urinary Bladder. B. S. Vallett.—p. 316.

Intestinal Obstruction. G. S. Serino.—p. 318.

Rational Use of Hormones in Pregnancy. R. C. Hayden.—p. 320.

Alcoholism and General Practitioner. H. T. McGuire.—p. 322.

New Psychiatric Diagnostic Nomenclature. P. J. Poinsard.—p. 324.

Psychotherapy. W. A. Byrne.—p. 325.

The Physician's Role in Marital Problems. C. J. Katz.—p. 326.

25:331-364 (Dec.) 1953

Diplopia with Intracranial Aneurysm. J. R. Fox and E. R. McNinch.—p. 331.

Mycotic Rat-Bite Fever: Report of Case. D. A. Toren.—p. 334.

Clinicopathologic Case Report. J. Elliott, J. W. Annand and O. J. Pollak.—p. 335.

Scrotal Diverticulum of Urinary Bladder.—The case presented by Vallett was that of a man, aged 68, who was hospitalized with the chief complaint of not being able to void. He had difficulty in passing urine for 10 years. There was a doughy mass in the right scrotal sac. Rectal examination revealed benign overgrowth of the prostate. An excretory urogram showed prompt appearance of the dye in both kidneys. A 60 minute film showed the bladder incompletely filled and irregular in outline on its right lateral aspect. This suggested some factor responsible for drawing the bladder to the right. Tumor was thought of, but in a lesion of this extent there would have been a history of hematuria. Both ureters in their lower one-third were displaced to the right. Cystoscopy revealed a normal bladder mucosa, but the mucosal surface of that part of the bladder wall that appeared displaced to the right in the excretory films could not be seen. It was assumed that this was a local sacculated area consequent to bladder neck obstruction. A diagnosis of benign overgrowth of prostate and right hydrocele was made and an operation planned to resect the hydrocele, and this was to be followed by electric endoscopic vesical neck resection. The right scrotal sac was opened, and it became apparent that there was no hydrocele. A mass was seen that was doughy and compressible. Careful dissection of

the mass revealed bladder muscle, and an incision into the lumen showed a bladder diverticulum. There was no urine in the diverticulum. A finger could be passed through the neck of this structure into the bladder proper. A transverse suprapubic incision was made and the bladder opened. It was now possible to invert the diverticulum and push it up through the external ring on into the bladder proper. However, it was apparent that diverticulectomy could be carried out more easily from the scrotal area. Consequently, the diverticulum was returned to this area and resected, purse-stringing its neck, which in turn was pulled up through the external inguinal ring, inverted, and tied from within the bladder. The prostate was left for subsequent endoscopic vesical neck resection that was carried out 18 days later. Diverticulum of the bladder in the scrotum is rare. The author makes a plea for the routine employment of the cystogram in urologic examination. The information gained is often greater than that derived from cystoscopy. It is the only accurate method of demonstrating scrotal cystocoele.

Diseases of Chest, Chicago

24:591-700 (Dec.) 1953

*Clinical Observations on Viomycin Sulfate in Treatment of Tuberculosis. R. L. Hackney, E. Q. King, E. E. Marshall and others.—p. 591.

Dramamine (Dimenhydrinate) as Adjunct to PAS (Para-Aminosalicylic Acid) in Treatment of Pulmonary Tuberculosis. L. I. Leonard.—p. 601.

Stress in Pulmonary Tuberculosis: I. Thorn Test and Circulating Eosinophils in Surgical Patients. A. Goldman, J. A. Breckler, E. Stern and R. Robison.—p. 608.

Continuous Pneumo Apparatus: Hospital and Portable Models. J. W. Cutler.—p. 619.

*Causes of Death in Carcinoma of Lung in Large Public Hospital: Analysis of 186 Fatalities. F. F. Boyce.—p. 626.

Improved Cardiac Defibrillator. R. M. Shepard Jr.—p. 642.

Congenital Multiple Cysts of Lung. H. Lichtenstein.—p. 646.

Experiences with Tetraethyl Ammonium Chloride in Bronchial Asthma. L. Gregory, M. Damiani, M. Johanson and others.—p. 655.

Experiences with Planography. B. Pollak.—p. 663.

Anterior Mediastinal Chondromyxosarcoma. A. Schwinger and S. D. Hemley.—p. 670.

Byssinosis. A. G. Hollander.—p. 674.

Tuberculous Stenosis of Trachea: Report of Case Treated by Incision. D. M. MacRae, J. J. Quinlan, F. J. Misener and J. E. Hiltz.—p. 679.

Audio-Visual Educational Methods in Cardio-Pulmonary Disease. J. S. Butterworth.—p. 684.

Viomycin Sulfate in Tuberculosis.—Five patients with advanced pulmonary tuberculosis and without history of previous antimicrobial therapy were treated with 3 gm. of viomycin sulfate daily for 13 weeks. The drug had a definite antimicrobial effect, but was too toxic for widespread use in tuberculosis therapy. Thirty-five patients with pulmonary tuberculosis were given 2 gm. of viomycin sulfate twice weekly and 12 gm. of *p*-aminosalicylic acid daily, and 24 control patients with pulmonary tuberculosis were given 2 gm. of dihydrostreptomycin twice weekly and 12 gm. of *p*-aminosalicylic acid daily. Viomycin sulfate in doses of 2 gm. twice weekly combined with 12 gm. of *p*-aminosalicylic acid daily was of slight toxicity. Tinnitus may be expected to occur. Allergic symptoms were not a major problem. Auditory nerve damage of a serious degree was not frequent. Streptomycin-resistant organisms were affected by viomycin, and patients having such organisms improved under intermittent viomycin treatment. Bacterial resistance to viomycin did not develop to a significant degree among patients treated for six months. Clinical improvement and clearing of exudative lesions evident roentgenologically were more striking in the patients treated with dihydrostreptomycin combined with *p*-aminosalicylic acid; however, the effectiveness of viomycin combined with *p*-aminosalicylic acid was definite and demonstrable. The clinical use of viomycin is feasible in the presence of streptomycin-resistant organisms and allergic sensitivity to streptomycin. Its use with newer antimicrobials should be explored.

Death from Carcinoma of the Lung.—Boyce analyzes 186 fatal cases of carcinoma of the lung from the Charity Hospital of Louisiana at New Orleans. Of the 186 patients, 33 underwent pneumonectomy and 22 of these died during the immediate postoperative period. Eleven others, who survived the operation, died later in the hospital. Only 4 of the 11 lived for two years or more, and only 1 lived as long as five years. Twenty-six of the 33 fatal pneumonectomies were palliative; this means

that the risk was greater in them than it would have been in curative operations. In 20 nonsurgical cases, in which the duration of symptoms before medical consultation was a month or less, 2 patients lived for a year after they became clinically ill, but 2 others lived for only two weeks, 3 for less than a month, and 5 for less than two months. These fatalities illustrate the unhappy and paradoxical fact that the shorter the duration of symptoms, the shorter also is the duration of life after their onset. The correlation between brevity of symptoms and the total illness was also clear in many of the 23 patients who submitted to surgical exploration, but the duration of life in this group was slightly longer than in the nonsurgical group. The extraordinarily wide extent and rapid development of extension and metastases in carcinoma of the lung was illustrated by 21 cases of metastases to the liver, 18 to the brain, 16 to the bones, 13 each to the adrenal glands and the heart and pericardium, 12 to the cervical lymph nodes, 11 to the aorta, 7 to the superior vena cava, 6 to the supraclavicular lymph nodes, 4 to the kidneys, 3 to the pancreas, and 2 each to the intestines and the thyroid. Only when pneumonectomy can be carried out promptly in respect to pathological process, not symptoms, are the results of treatment rewarding, but few patients were operated on promptly because they often delayed seeking treatment. Physicians whom they first consulted and hospital staff members often failed to suspect the diagnosis or were slow to recommend surgery. The investigation was sometimes perfunctory, sometimes unnecessarily repetitious, and sometimes enmeshed in hospital routine and protocol. Appallingly often the clinical course was far too brief to permit any positive action. If the mortality is to be lowered in carcinoma of the lung, which is now of major importance among malignant diseases, the profession must (1) develop a far higher index of suspicion concerning it; (2) explore the chest on suspicion much oftener; (3) stress the urgency of diagnosis and treatment; (4) investigate the whole person rather than limited fields whenever adults seek medical care for any reason whatsoever; and (5) make the fullest possible use of data available in mass chest surveys.

Geriatrics, Minneapolis

8:629-686 (Dec.) 1953

- Preparation of Aged Patient Facing Emergency Surgery. S. E. Ziffren and R. F. Sheets.—p. 629.
 Effect of Hydrogenated Alkaloids of Ergot on Hypertensive Headaches. T. Winsor.—p. 636.
 Physical Medicine in Treatment and Rehabilitation of Rheumatic Disease. H. Dinken.—p. 643.
 Use of Betaine-Lipotropic Combinations in Clinical Practice. L. M. Morrison.—p. 649.
 Study of Socialization of Old People. W. Donahue, W. W. Hunter and D. Coons.—p. 656.

Industrial Medicine and Surgery, Chicago

22:547-602 (Dec.) 1953

- Fatigue—Measurement and Reduction. L. Brouha.—p. 547.
 Hydrocortisone Therapy in Ganglia. W. F. Becker.—p. 555.
 Disability, Rehabilitation and Law of Damages: Implications of Modern Rehabilitation Medicine. F. A. Hellebrandt.—p. 558.
 Cadmium Intoxication: Clinical Report of Acute Accidental Group Exposure. M. L. Amdur and R. A. Caputi.—p. 561.
 *The Painful Elbow. G. G. Maida.—p. 567.
 Radiation Injury and Present Status of Therapeutics: Bibliographic Review. T. J. Haley.—p. 569.
 Lead and Lead Poisoning in Early America—The Pewter Era. C. P. McCord.—p. 573.
 Prevention of Cardiac Disability. L. H. Bronstein, H. J. Bennett, S. C. Franco and others.—p. 578.

Painful Elbow.—An insidious condition of the elbow, which is found with relative frequency in heavy industry, is epicondylitis. This is a periostitis of the bone, affecting either the median or lateral epicondyle of the humerus, usually with some concomitant involvement of the nerves surrounding the area—the median, the radial, and/or the ulnar. The radiohumeral ligaments and even the bursas may be involved. It is the result of repeated bruising of the elbow. It causes moderate pain, and at the beginning even exquisite tenderness. Motion of the arm and forearm may be limited, but it is not definitely restricted. The pain shoots up and down the arm and forearm from the lateral or median epicondyle and

usually is intensified by grasping or lifting with the extended forearm. The condition is chronic and largely refractory to treatment, but with the passage of time, it regresses spontaneously. During the last two years, the author diagnosed 20 cases, 3 of which are presented. Numerous treatments all proved to be of temporary value or just a means of tiding over during the acute stage. There is loss of efficiency but no disability. The Workmen's Compensation Commission's final opinion was always discomfort over the elbow region, no disability.

International Journal of Leprosy, New Orleans

21:295-426 (July-Sept.) 1953

- Leprosy in Children of French West Africa. Laviron and Lauret.—p. 295.
 *BCG in Prophylaxis of Leprosy: Preliminary Report. N. de Souza Campos.—p. 307.
 *Value of Lepromin Reaction in Diagnosis of Clinical Forms of Leprosy. S. Schujman.—p. 313.
 Study of Morphological Modifications of Mycobacterium Leprae During Chemotherapy. M. G. Malfatti and E. D. L. Jonquieres.—p. 323.
 Staining of Mycobacterium Leprae by Rio Horta Silver Method in Frozen and Paraffin Sections. J. Sanchez.—p. 331.
 Review of Recent Animal Inoculation Studies with Human and Murine Leprosy Bacilli. T. Tanimura and S. Nishimura.—p. 335.

BCG in Prophylaxis of Leprosy.—De Souza Campos orients his note toward three questions asked by Fernandez in 1951.

1. What is the value of the positive Mitsuda reactivity induced by BCG in a healthy person? 2. What is the incidence of leprosy among persons vaccinated with BCG and among those not so vaccinated? 3. Are there well-substantiated cases of lepromatous leprosy developing in persons previously vaccinated with BCG? From the small number of statistics that exist, the following conclusions can be drawn. BCG vaccination clearly has a protective effect against leprosy infection, as shown by the incidence of only 0.6% among the vaccinated persons as against 5.6% among the nonvaccinated ones during the same period of time. Among the vaccinated contacts, only tuberculoid leprosy developed, reactional in five, the childhood nodular form in four, and circinate in one. In contrast, of the cases among the nonvaccinated contacts 26.3% were of the lepromatous form, 46.9% of the undifferentiated form, and only 26.8% of the tuberculoid form. These data are obviously initial ones, and subsequent observations may alter them quantitatively and qualitatively. There is no doubt in the author's mind, however, that they indicate clearly that BCG has a protective effect against leprosy infection.

Lepromin Reaction in Diagnosis.—Although the international classification of leprosy is based on clinical, bacteriological, histological, and immunological criteria, the author feels that the immunological one as revealed by the late reaction to the lepromin test (Mitsuda phenomenon) is the most important and dependable one because it is the least subject to change. In the prolonged evolution of the disease, the clinical, bacteriological, and histological elements not only undergo modification but may eventually disappear entirely, whereas the immunological one remains, as a rule, constant, positive in the tuberculoid form and negative in the lepromatous form. With respect to the indeterminate group, the author has never seen a strongly positive case change to negative or evolve to the lepromatous form. On the other hand, cases with negative lepromin reactions, especially those that have positive bacteriological evidence and that are insufficiently treated, usually change to the lepromatous form. The number of cases observed is, however, relatively small, and, to permit definite conclusions to be drawn, indeterminate cases should be studied thoroughly at other centers and immunological curves should be established by testing every three months to demonstrate immunological evolution. If it is proved that the cases with negative lepromin reactions do eventually become the lepromatous form, they should be regarded as prelepromatous or potentially lepromatous. The lepromin reaction assumes its full value in classification in the cases without skin lesions, since guidance from clinical, bacteriological, or histological aspects is lacking. Where the Mitsuda reaction is frankly negative, it may be concluded that the disease is of the lepromatous form with nerve localization, if the patient has never had skin lesions or a neural form secondary to a previously lepromatous

one in which there were skin lesions that have disappeared. When the reaction is frankly positive the disease can generally be regarded as tuberculoid leprosy of the nerve where there have never been skin lesions or neural, secondary to previously tuberculoid leprosy, when skin lesions have disappeared. Two cases are reported to illustrate how the immunological findings alone permitted diagnosis of the clinical form; these diagnoses were confirmed by biopsy of the cubital nerve.

Journal of Bacteriology, Baltimore

66:627-738 (Dec.) 1953. Partial Index

- External Surface of Human Body as Habitat for Nonfermenting Non-pigmented Yeasts. G. H. Connell and C. E. Skinner.—p. 627.
 Desoxyribonucleic Acid and Budding Cycle in Yeasts. M. Ogur, S. Minckler and D. O. McClary.—p. 642.
 Selective Action of Thallium Acetate and Crystal Violet for Pleuropneumonia-like Organisms of Human Origin. H. B. Morton and J. G. Lecce.—p. 646.
 Influence of Diphosphopyridine Nucleotide on Stability of Typhus Rickettsiae. M. R. Bovarnick, B. G. Allen and G. Pagan.—p. 671.
 Acid Formation in Cultures of *Mycobacterium Butyricum*. G. J. B. Hunter.—p. 676.
 Metabolism of Ribonucleic Acid in Normal and Bacteriophage Infected *Escherichia Coli*. L. A. Manson.—p. 703.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

13:1445-1604 (Dec.) 1953

- 17-Hydroxycorticosteroids and 17-Ketosteroids in Urine of Human Subjects: Clinical Application of Method Employing β -Glucuronidase Hydrolysis. A. A. Sandberg, D. H. Nelson, E. M. Glenn and others.—p. 1445.
 Methods for Determination of Formaldehydogenic Steroids by Diffusion and Direct Reaction. H. Wilson.—p. 1465.
 Primary Gonadal Insufficiency in Girl and Boy: Metabolic Effects of Estrogen and Testosterone. F. T. G. Prunty, R. R. McSwiney and B. B. Clayton.—p. 1480.
 Effect of Ingested Protein and Tyrosine on Circulating Eosinophils. I. Vartiainen and J. Apajalahti.—p. 1502.
 *Propylthiouracil: 4-6 Year Follow-Up of Selected Patients with Graves' Disease. E. P. McCullagh and C. B. Cassidy.—p. 1507.
 *Histologic Lesions in Thyroid Glands of Patients Receiving Radioiodine for Hyperthyroidism. M. E. Dailey, S. Lindsay and B. R. Miller.—p. 1513.
 Carcinoma of Thyroid Gland. J. D. Majarakis, D. P. Slaughter and W. H. Cole.—p. 1530.

Propylthiouracil in Graves' Disease.—Propylthiouracil was given to 60 patients with Graves' disease who had small to moderate-sized diffuse goiters and hyperthyroidism. All patients were followed from four to six years after treatment with propylthiouracil was discontinued. In 40 (66.7%) of the 60 patients thyrotoxicosis was in remission at least four years after the drug was discontinued. The remaining 20 patients (33.3%) had relapses, and in 13 of them a relapse occurred within five months after treatment was discontinued. Remission implies complete freedom from symptoms and signs of hyperthyroidism and a basal metabolic rate lower than $+10\%$. In 32 of the 40 patients (80%) who had lasting remissions, the hyperthyroidism was completely controlled within three months after treatment was started. In most patients, a dose of 200 mg. of propylthiouracil per day given as four 50 mg. tablets (one after each meal and one at bed time) was adequate for complete control of the hyperthyroidism. Because of occasional slow response, the amount of the drug was increased to 300 or 400 mg. per day if necessary. It is the authors' impression that the longer treatment is continued the more likely is the chance of lasting freedom from the thyrotoxicosis, but, in 8 of the 40 patients in whom the disease remained in remission, treatment was stopped five months or less after control was first obtained.

Histopathological Lesions in Thyroid After Radioiodine Therapy.—The hyperplastic or nodular thyroid glands of 23 hyperthyroid patients were irradiated with radioactive iodine (I^{131}) and examined microscopically. The patients treated toward the end of the study received 120 μ c of I^{131} per estimated gram of thyroid tissue, while earlier in the study small doses of I^{131} were employed. The total dose of I^{131} administered varied from 471 to 23,439 μ c. At the time of thyroidectomy, 21 patients were euthyroid and in most of them the thyroid gland had decreased in size. Of the remaining two patients, one died from diabetic acidosis and the other from laryngeal

spasm during thiopental (Pentothal) sodium administration because of a manic state; both of these patients were still hyperthyroid. On microscopic examination thyroid glands of seven patients were predominantly hyperplastic and no definite radiation effects were observed. The thyroid glands of nine patients had lesions identical with those of Hashimoto thyroiditis. This high incidence of thyroiditis, when compared with that in nonirradiated hyperplastic thyroids, is highly significant statistically. This suggests that Hashimoto thyroiditis is one effect of internal irradiation with radioiodine. Four thyroid glands contained multiple nodules and showed moderate follicular atrophy of the residual glandular tissue. It was concluded that this atrophy was also the result of injury by irradiation. Three thyroids showed diffuse follicular atrophy and fibrosis, regarded as classic lesions caused by irradiation. Vascular disease in the 23 thyroid glands was minimal and had no relation to the regressive thyroid lesions observed. Pleomorphic and hyperchromatic alterations of thyroid epithelial cells observed in these thyroids were not believed to be related directly to irradiation. These studies indicated that amelioration of hyperthyroidism may occur after irradiation of the thyroid gland with I^{131} , usually in the absence of the classic structural changes generally associated with injury from irradiation.

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 Antigenic Studies of Group of Paracolon Bacteria. W. C. Eveland and J. E. Faber Jr.—p. 226.
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 Changes in Tissue Radiosodium Space Associated with Experimental Rocky Mountain Spotted Fever in Guinea Pigs. J. K. Aikawa and G. T. Harrell.—p. 263.
 Antigenic Hemophilus Pertussis Vaccines Grown on Charcoal Agar. P. W. Ensminger, C. G. Culbertson and H. M. Powell.—p. 266.
 Further Observations on Effect of 2,4-Dinitrophenol on Growth of Influenza Virus. M. D. Eaton and M. E. Perry.—p. 269.
 Studies in Old Mice to Test Hypotheses of Local and General Immunity to Trichinella Spiralis. J. E. Larsh Jr.—p. 282.
 Russian Spring-Summer Encephalitis and Louping Ill Group of Viruses: Relationship of European and Asiatic Strains of Russian Spring-Summer Encephalitis Viruses and Louping Ill Virus. W. L. Pond, S. B. Russ and J. Warren.—p. 294.

Journal of International College of Surgeons, Chicago

20:667-800 (Dec.) 1953

- Newer Trends in Treatment of Old Congenital Dislocations of Hip. J. Hass.—p. 667.
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 *Acute Mesenteric Arterial Occlusion: Restoration of Blood Flow by Embolectomy. A. A. Klass.—p. 687.
 *Enzymatic Débridement of Suppurations, Necrotic Lesions and Burns with Papain. A.-V. Guzman and M. G. Stein de Guzman.—p. 695.
 20 Years' Experience with Myomectomy During Childbearing Period. G. Jones.—p. 703.
 Surgical Treatment of Bilateral Lithiasis. S. Petkovic.—p. 709.
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 Conservative Therapy of Carotid Body Tumors. E. L. Doermann and W. H. Meffley.—p. 761.
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 Hepato-Enterostomy. I. Honjo and C. Araki.—p. 775.
 Congenital Right Diaphragmatic Hernia in an Adult. H. F. Mars and J. A. Bollinger.—p. 780.

Occlusion of Mesenteric Artery.—Acute occlusion of the superior mesenteric artery is reported in a 64-year-old man and in a 67-year-old woman. The occlusion was correctly diagnosed in both patients, and surgical removal of an obstructing intra-arterial plug was carried out successfully, although both

patients died within 60 and 56 hours, respectively, after the operation. Death of the man resulted from myocardial failure, and the woman died of massive intraperitoneal hemorrhage from mesenteric veins that had been cut in the dissection necessary to expose the superior mesenteric artery in the course of the operation. Necropsy in both cases revealed that the bowel was normal and in a condition consistent with survival. In the man the bowel had been totally deprived of blood for 14 hours and in the woman for 12 hours. In both patients, the superior mesenteric artery and its branches remained patent after removal of the obstructing lesion. The author makes several conclusions. 1. Circulation in the superior mesenteric artery and its branches can be restored by removal of the obstructing thrombus. 2. Circulation within the bowel wall compatible with continuing viability can be assured by this procedure. 3. The bowel wall can survive total deprivation of blood for a period of 14 hours. Nothing can be said with reference to survival beyond this time limit, but parallel experience with muscle tissue generally would indicate that it cannot safely be exceeded. 4. During the operation, particular care should be taken to secure arrest of hemorrhage, which may occur after restoration of the mesenteric blood flow. This applies particularly to the dissection of mesenteric fat that is necessary to expose the superior mesenteric artery. 5. The postoperative use of heparin should be avoided. Sufficient reliance can be placed on flow velocity in an artery to prevent reformation of a thrombus at the site of the incision into the vessel.

Débridement with Papain.—The fibrinolytic enzyme papain, the dried milky juice of the melon tree *Carica papaya*, was given a therapeutic trial in the débridement of chronic suppurative and necrotic areas of 13 children and 7 adults with second and third degree burns, chronic leg ulcers, gangrene, carbuncle, chronic suppuration, and dry crusts. Several commercial preparations of papain were used that varied greatly in potency. In three patients, the fibrinolytic potency of the enzyme was compared with that of a standard preparation of streptokinase-streptodornase and was observed to be similar. Two methods were employed for the treatment: (1) direct application of the powder with a common vaginal insufflator, and (2) application of wet dressings with freshly prepared solutions of the enzyme, ranging from 2 to 5%. Both methods proved effective provided that the lesion and the dressings were prevented from drying within a minimum period of 24 hours by using several layers of surgical gauze well soaked with isotonic sodium chloride solution and a final layer of petrolatum gauze. Papain did not cause any deleterious action on healthy tissues, and systemic or generalized reactions were not noticed during its application. The powder and solutions used were not bacteriologically sterile and, nevertheless, no reaction attributable to their application was observed. The cost of papain is so low that any hospital or patient can afford to use it extensively.

Journal Lab. and Clinical Medicine, St. Louis

42:833-1006 (Dec.) 1953

- Uptake in Vitro of Radioactive Iron by Avian Erythrocytes. W. N. Jensen, H. Ashenbrucker, G. E. Cartwright and M. M. Wintrobe.—p. 833.
- Interference with Fibrin Formation in Multiple Myeloma by an Unusual Protein Found in Blood and Urine. C. G. Craddock Jr., W. S. Adams and W. G. Figueroa.—p. 847.
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- Distribution of Colloidal Radioactive Chromic Phosphate After Intracavitary Administration in the Rat. J. A. D. Cooper and E. M. Zorn.—p. 867.
- Studies of Liver Function Tests: IV. Effect of Repeated Injections of Sodium Benzoate on Formation of Hippuric Acid in Patients with Liver Disease. L. Zieve and M. Hanson.—p. 872.
- Antibiotic Combinations and Resistance to Antibiotics: Development of Resistance During Repeated Subcultures of Staphylococci and Certain Streptococci on Media Containing Penicillin, Streptomycin, Erythromycin, Terramycin, and Chloramphenicol Used Singly and in Pairs. S. S. Wright, E. M. Purcell, C. Wilcox and others.—p. 877.
- Serologic Diagnosis with Respect to Histoplasmosis, Coccidioidomycosis, and Blastomycosis and Problem of Cross Reactions. C. C. Campbell and G. E. Binkley.—p. 896.

Maine Medical Association Journal, Portland

44:299-326 (Nov.) 1953

- Psychosomatic Aspects of Medicine. D. W. Atchley.—p. 299.
- Temporal Arteritis: Treatment with Cortisone: Two Case Reports. M. A. Chapin and R. A. Frost.—p. 304.
- Cardiac Lesions in Rheumatoid Arthritis. C. W. Steele.—p. 308.
- Hyperleukocytosis and Macrocytic Anemia Resulting from Carcinoma of Ileum: Case Report. M. A. Chapin.—p. 312.
- Modified Pomeroy Sterilization. E. T. Bennet.—p. 314.

44:327-358 (Dec.) 1953

- *Subendocardial Fibroelastosis. L. E. Morris Jr. and F. C. Emery.—p. 327.
- The Family Physician and Cardiac Surgery. W. B. Manter.—p. 331.
- Regional Ileitis. R. T. Munce.—p. 334.
- Instrumental Management of Forecoming Head. W. M. Shubert.—p. 336.
- Hyaline Membrane Disease. S. E. Monaghan.—p. 338.

Subendocardial Fibroelastosis.—The infant whose case is reported had been born at term, but the mother had had a moderate toxemia of pregnancy. Physical examination at birth and subsequent neonatal course suggested that the child was normal. The infant was seen again at 3 months of age because of anorexia and irritability. Examination showed anemia. There was a good clinical response to administration of iron, liver, and vitamin B₁₂. One week prior to admission the patient seemed to have a "cold" with nasal discharge, cough, and return of anorexia and irritability. Rapid, irregular respirations were noted, and the infant refused food and seemed to cry continually. The respirations were rapid and grunting in type. The cyanosis became worse on crying. There was lack of breath sounds with an impaired resonance over the left chest. The heart sounds were indistinct. The infant was pneumonia with atelectasis and pleural effusion in the left lung. The patient was placed in oxygen and given penicillin and streptomycin parenterally. By the second hospital day, there was no improvement in respiration, but cyanosis was no longer present and pneumonia seemed unlikely. On the third day, antibiotics were discontinued. The infant became more distressed without oxygen and gave indications of being in severe pain. A diagnosis of subendocardial fibroelastosis was considered as well as a possible anomalous origin of the left coronary artery. On the fifth hospital day the condition was worse, and congenital heart disease was thought of. On the ninth day signs of decompensation developed and digitalis was started. A pericardial tap was done to relieve possible tamponade but no fluid was found. The patient exhibited a brief period of Cheyne-Stokes respirations and died on the 13th hospital day. Autopsy revealed dilation of the right auricle. The heart weighed 88 gm. On microscopic examination, sections of the interventricular septum showed endocardial thickening due to proliferation of loose, basophilic tissue. Toward the myocardium, this tissue became progressively more dense and collagenous. The lungs showed atelectasis. Two types of endocardial thickening may be recognized: primary and secondary. The latter is a reparative fibrosis and may be found in such diseases as myocardial infarction, rheumatic fever, diphtheria, subacute bacterial endocarditis, malignant nephrosclerosis, periarteritis nodosa, disseminated lupus erythematosus, and beriberi. The primary type may be found at any age but it is commoner in infants and children. The symptoms in the reported case were similar to those of previous reports, but cardiac pain seemed severer. In children this disease is best explained as a developmental anomaly, perhaps an overgrowth of the endocardium of the left bulbous cordis. It may also be secondary to a valvular or other cardiac defect leading to anoxia of the endocardium. In adults, the etiology and pathogenesis remain obscure. Rapid myocardial failure in a previously healthy person, with or without peripheral embolization, should suggest this disorder.

Medical Annals of District of Columbia, Washington

22:639-708 (Dec.) 1953

- Physical Measurement and Medicine. A. V. Astin.—p. 639.
- Vaccination Against Influenza. D. J. Davis.—p. 643.
- Agammaglobulinemia (Congenital Absence of Gamma Globulin): Report of Case. O. C. Bruton.—p. 648.
- Rheumatoid Arthritis-Like Syndrome During Apresoline Therapy: Report of Case. V. P. Beelar.—p. 651.
- Depression: Some Dynamic and Clinical Features of Depressive Character Defenses, Psychoneurotic Depression and Suicide. H. P. Laughlin.—p. 653.

Michigan State Medical Society Journal, Lansing

52:1137-1256 (Nov.) 1953

- Newer Concepts Concerning Tuberculosis During Childhood. M. I. Levine.—p. 1169.
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 Psychiatry for the General Practitioner. H. A. Luce.—p. 1177.
 Methosin in Treatment of Nutritional Dwarfism: Preliminary Report. W. H. Hewes.—p. 1181.
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 Our Heritage in British Medicine from Bright to Gull. R. M. McKean.—p. 1204.
 Severe Urticaria and Anglo-Edema Resulting from Phenylbutazone (Butazolidin®). S. J. Levin.—p. 1210.

New England Journal of Medicine, Boston

249:871-914 (Nov. 26) 1953

- The Balanced Curriculum. H. Cohen.—p. 871.
 Value of Single Injection of Thyrotropin in Diagnosis of Obscure Hypothyroidism. W. M. Jefferies, R. P. Levy, W. G. Palmer and others.—p. 876.
 Fractures of Carpal Navicular: Accurate Diagnosis and Planned Treatment. E. C. Branson.—p. 884.
 Respiratory Depressant Action of N-Allylnormorphine in Normal Subject and in Patients with Respiratory Acidosis Secondary to Pulmonary Emphysema. S. M. Tenney and J. C. Mitrofer.—p. 886.
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 Treatment of Pediculosis Ciliarum in Infant. P. Ronchese.—p. 897.
 249:915-956 (Dec. 3) 1953
 A Rededication? J. P. Bowler.—p. 915.
 Unrecognized Emboli to Lungs with Subsequent Cor Pulmonale. W. R. Owen, W. A. Thomas, B. Castleman and B. F. Bland.—p. 919.
 Pilonidal Sinus: Experience with 449 Cases. R. W. Dwight and J. K. Maloy.—p. 926.
 Cholecystography in Presence of Liver Disease. A. D. Etess and B. Straus.—p. 930.
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 Neurofibroma of Diaphragm. R. H. Sweet and T. Gephart.—p. 939.

Treatment of Pediculosis Ciliarum in Infants.—According to Ronchese pediculosis (infestation with Phthirus pubis or crab lice) of the eyelashes and the edges of the eyelids is rare in adults but less rare in infants, who become infested by passage of the lice from the axillary or chest hair of the parents or attendants. The lice are visible to the naked eye or can be seen with the help of magnifying glasses. Treatment is simple; the lice and ova (nits) are easily picked out with a pair of cilia forceps (tweezers) or trachoma forceps (not just any forceps). The removal of the nits is facilitated by the infant's tears. In cases of such long standing that acute or chronic blepharitis has developed, antiseptic or antibiotic medication may be indicated. In early uncomplicated cases removal of the lice and nits is sufficient and medicaments are unnecessary. Recurrences are due to reinfestations from the same source, parents or attendants.

249:957-1004 (Dec. 10) 1953

- *Mallory-Weiss Syndrome: Hemorrhage from Gastroesophageal Lacerations at Cardiac Orifice of Stomach. J. P. Decker, N. Zamcheck and G. K. Mallory.—p. 957.
 Hindquarter Amputation: Experience with 18 Cases. G. W. Taylor and W. P. Rogers Jr.—p. 963.
 Use of Radioactive Iodine in Detection of Thyroid Dysfunction. W. W. Drummy Jr.—p. 970.
 Acute Hemolytic Anemia Associated with Infectious Mononucleosis. B. D. Hall and F. C. Archer.—p. 973.
 Dermatologic Therapy. J. G. Downing.—p. 976.
 *Peripheral Vascular Collapse After Subcutaneous Use of Hypertonic Nonelectrolyte Solution. J. J. Butler.—p. 988.

Hemorrhage from Gastroesophageal Lacerations.—Decker and his associates say that since the original descriptions of gastrointestinal hemorrhage caused by cardioesophageal lacerations induced by vomiting presented by Mallory and Weiss more than twenty years ago, there have been no further reports of this syndrome. Several large series of gastrointestinal bleeding recently studied from a clinical standpoint make no mention of this syndrome as a cause for hematemesis. However, among 101 patients with gastrointestinal bleeding, recently examined at autopsy at the laboratory with which these authors

are connected, 3 were found in whom death was caused by cardioesophageal lacerations. At least 11 cases of gastrointestinal hemorrhage due to cardioesophageal lacerations have been examined at autopsy in their laboratory. Clinical and pathological observations in these cases and six case histories illustrative of various features of the syndrome are reported. Examination of the case histories, in an attempt to clarify the pathogenesis of these lesions, revealed that the common factor was vomiting. Analysis of the cases yielded no explanations more reasonable than that advanced by Mallory and Weiss—namely, that the lacerations were produced by violent retching movements, which forced the gastric contents against a contracted cardiac sphincter. Reports of cases of spontaneous rupture of the esophagus emphasize the importance of violent retching and vomiting. The similarity of these conditions suggests a common mechanism. Atrophic gastritis is a possible underlying factor in the production of lacerations at the cardia. Atrophic mucosa may be less resistant than normal mucosa to the traumatic effects of vomiting. A significant degree of atrophic gastritis was present in six of the eight cases in which specimens of gastric mucosa were available for microscopic study. In animals, gastritis with ulceration and bleeding can be produced by a variety of nutritional deficiencies, particularly of components of the vitamin B complex. Alcoholism is commonly accompanied by vitamin deficiencies, particularly of the C and the B group. Most of the cases of this syndrome originally reported by Mallory and Weiss were associated with alcoholism. Many of the cases in the present series, however, were associated with a variety of diseases not only in the gastrointestinal tract but also in remote organs. Protracted vomiting or retching remains the common etiologic factor in all cases. Associated pathogenetic factors include chronic atrophic gastritis, alcoholism and nutritional cirrhosis.

Peripheral Vascular Collapse After Subcutaneous Use of Hypertonic Nonelectrolyte Solution.—Butler presents a case in which 1,200 cc. of hypertonic nonelectrolyte solution was given subcutaneously on the second day of an uneventful post-operative period. Severe peripheral collapse resulted. The patient responded well to administration of plasma and whole blood. The author cites experimental observations and a warning editorial on the peripheral vascular collapse that may be induced when hypertonic nonelectrolyte solutions are injected subcutaneously. The collapse can probably be explained by the shift of fluid and electrolytes from one body compartment to another. Subcutaneous infusions should probably be restricted to the use of isotonic electrolyte solutions.

New Jersey Medical Society Journal, Trenton

50:487-534 (Nov.) 1953

- *Selection of Cases for Mitral Commissurotomy. N. A. Antonius, R. Miller, H. Green and A. D. Crecca.—p. 490.
 Medical Degrees in New Jersey. F. B. Rogers.—p. 496.
 Infarction of Liver Due to Polyarteritis Nodosa. H. P. Price and C. J. Flanagan.—p. 500.
 Asthma in First Year of Life. W. P. Buffum.—p. 503.
 *Iatrogenic Meningitis. M. Cutler and P. Cutler.—p. 510.
 Idiopathic Hemorrhagic Infarction of Testis in Newborn. A. R. Fernicola.—p. 515.
 Organic Diseases Simulating Psychogenic Disorders. A. D. Dennison Jr.—p. 520.

Mitral Commissurotomy.—As a result of their experiences with 100 patients operated on for mitral stenosis, Antonius and co-workers subscribe to a compromise view between the extreme recommendations of two surgical schools that consider for mitral commissurotomy those patients with dynamically significant mitral stenosis in whom early symptoms have appeared and progressive congestive heart failure has not developed. Contraindications to surgical intervention consist of active rheumatic infection, subacute bacterial endocarditis, significant aortic valvular lesions, pronounced mitral insufficiency, pronounced cardiomegaly with extensive myocardial damage, emotional instability, intractable heart failure, or associated hypertensive or coronary heart disease. History and physical examination, fluoroscopy, electrocardiography, and cardiac catheterization may be utilized in arriving at the conclusion regarding suitability for surgical intervention. The underlying physiology of mitral stenosis determining the rationale for

such surgical intervention is outlined. Surgical repair of the deformed valve is but an adjunct in the care of rheumatic cardiac patients; they may be restored to great activity, enjoying a more normal life, yet they must, for the immediate future, be considered as cardiac patients under the continued supervision of their physicians.

Iatrogenic Meningitis.—Two cases of meningitis resulting from lumbar puncture for spinal anesthesia, one in a 19-year-old woman and one in a 60-year-old man, are reported with an extensive review of the literature. Iatrogenic meningitis is increasing. Lumbar puncture for diagnosis, anesthesia, or therapy is responsible for most cases. Routes of bacterial contamination are the anesthetic solution, unsterile instruments, supposedly sterile water used in rinsing syringes and needles, "sterile jars" used in storing syringes, air, and vials of penicillin used for intrathecal medication. Culture of the spinal fluid of both of the authors' patients revealed *Pseudomonas aeruginosa*, the causative agent in most cases of iatrogenic meningitis. Examination of the spinal fluid with ultraviolet light is a simple, rapid clinical means of identifying this organism. The diagnosis of iatrogenic meningitis is usually simple to make. A history of lumbar puncture followed in 12 hours to 10 days by meningitic signs establishes the diagnosis. This type of meningitis, in contrast to the epidemic meningococcal type, tends to be subacute only in its intensity; the natural course of the disease is long and is characterized by remissions and relapses. Exacerbations may occur even months after an apparent cure. Penicillin not only was ineffective, but may actually stimulate growth of *Pseudomonas*. It should not be administered to patients with iatrogenic meningitis. Of 23 cases collected from the literature in which streptomycin was given either intrathecally, parenterally, or combined, 15 were cured and 8 died. In the authors' female patient, *Pseudomonas aeruginosa* was resistant to penicillin, bacitracin, streptomycin, and chlortetracycline (Aureomycin), but was moderately sensitive to both oxytetracycline (Terramycin) and chloramphenicol (Chloromycetin); a complete cure was obtained with the two latter drugs. Recovery of the man was obtained with streptomycin given by intramuscular and intrathecal routes. Polymyxin was effective in the few reported trials. Neomycin proved effective in two cases. Effective therapy depends on proper identification and sensitivity tests of the organism involved.

New York State Journal of Medicine, New York

53:2415-2550 (Nov. 1) 1953

- Value of Estrogen Therapy in Obstetric Difficulties and Puerperium. T. Neustaetter.—p. 2455.
- Significance of Abnormal Uterine Bleeding Due to Ovarian Dysfunction. I. Frost.—p. 2459.
- Use of ACTH and Cortisone Therapy in Obstetrics and Gynecology. G. S. Jones and J. E. Howard.—p. 2463.
- *Advantages and Risks of Preserving Ovary After Age of 45. C. L. Randall and P. R. Gerhardt.—p. 2467.
- Indications and Complications of Resection Operation on Inferior Rectus Muscle. H. W. Brown.—p. 2472.
- Modern Trends in Cataract Surgery. T. LeWin.—p. 2479.
- Ocular Changes in Head Injuries. J. F. Gipner.—p. 2481.
- Treatment of Chronic Discharging Ear. J. A. Sullivan.—p. 2486.
- Malignancies of Ear, Nose, and Throat. D. W. Brewer.—p. 2492.
- Statistical Study of Postoperative Tonsil and Adenoid Hemorrhage. R. J. Bellucci.—p. 2495.
- Psychosomatic Aspects of Educated Childbirth. H. B. Davidson.—p. 2499.
- Some Psychologic Observations of "Educated Childbirth." P. Donovan and S. Landisberg.—p. 2504.
- Thyroid Cancer. W. Trevor.—p. 2511.
- Pattern of Skin Eruption Due to Fleas. L. Wirth.—p. 2513.

Advantages and Risks of Preserving Ovary After Age 45.—

The advantages of preserving the ovaries when operating on women over 45 are often regarded as not sufficiently important to warrant the risk that a malignant lesion may develop if an ovary is not removed at the time of hysterectomy. Physicians and laboratories in the state of New York for the past 12 years have been reporting all malignant tumors to the Division of Cancer Control. From the information thus obtained the authors estimate that the calculated risk of preserving the ovary, at least in women "over fifty," would appear to be that, in 1,000 women subjected to pelvic laparotomy, in 8 a malignant and in 6 a benign neoplasm will develop, all of which

could have been prevented if both ovaries had been removed at laparotomy. They doubt that this warrants the removal of normal-appearing ovaries merely as a prophylactic measure. The chance of bilateral involvement, not grossly appreciable but already developing in the other ovary, does indicate careful inspection and bisection of the opposite ovary before it can be regarded as normal and uninvolved by a neoplasm involving one side. When contemplating the prophylactic removal of ovaries in women over 45, account should be taken of two facts: In a review of over 1,100 benign cystomas it was found that approximately 70% had developed before the age of 45, and the probability of a malignant lesion developing in a woman's ovary is now known to decrease rapidly after her 50th year.

North Carolina Medical Journal, Winston-Salem

14:593-648 (Dec.) 1953

- Prevention of Rheumatic Fever. E. Craige.—p. 593.
- Nutrition in Obstetrics. R. L. Burt.—p. 596.
- Bronchial Arteries: Review of Their Physiology in Health and Disease. C. B. Taylor.—p. 603.
- Recent Advances in Treatment of Infantile Hydrocephalus. E. Alexander Jr. and C. H. Davis Jr.—p. 610.
- Breast Carcinoma: Appraisal of Surgical Treatment. C. H. Ingram.—p. 614.
- Radical Radiotherapy in Breast Cancer: Analysis of Modified McWhirter's Technique. F. R. Gilmore.—p. 617.
- Diagnosis and Management of Poisoning Due to Organic Phosphate Insecticides. H. R. Chamberlin.—p. 623.
- Treatment of Pyogenic Granulomas and Hemangiomas. F. M. Hodges.—p. 628.

Ohio State Medical Journal, Columbus

49:1061-1172 (Dec.) 1953

- Treatment of Chest Injuries. D. K. Heydinger and K. P. Klassen.—p. 1081.
- *Unlimited Diet in Peptic Ulcer—1,000 Cases. E. A. Marshall.—p. 1085.
- Sex Hormone Therapy in Gynecology. E. Eichner.—p. 1089.
- Day Hospital Unit—Milieu Therapy, Its Place in Treatment of the Mentally Ill. P. C. Rond.—p. 1093.
- Use of Hydrocortisone-Neomycin Ointment. R. L. Kile.—p. 1097.
- Treatment of Pyogenic Skin Infections with Ilotycin® Ointment (Erythromycin). I. L. Schonberg.—p. 1099.

Unlimited Diet in Peptic Ulcer.—It was Marshall's aim to set up a schedule that would permit the ulcer patient to eat and drink everything without distress at the end of 24 hours. While this can be done in many ways, the author feels that the use of combination tablets is the simplest method. Aluminum hydroxide, because of its adsorptive properties, was the basic treatment in most of the 1,000 patients treated by the author. A no. 2 tablet, which contained calcium carbonate, 0.5 gm., magnesium oxide, 0.25 gm., phenobarbital, 0.016 gm., and atropine, 0.0002 gm., was compounded to furnish neutralization and sedation and to combat the constipating effect of aluminum hydroxide. This tablet was effective, but had a somewhat excessive laxative effect, and so in a no. 3 tablet the magnesium oxide was dropped and the calcium carbonate increased to 0.65 gm. With the use of the three tablets—first, a 0.65 mg. tablet of aluminum hydroxide and tablets or capsules no. 2 and no. 3—the schedule is usually set up on an ambulatory basis. Assuming that the patient arises at 6:30 a. m. and retires at 11 p. m., he is given two tablets (1.3 gm.) of aluminum hydroxide at 6:30, 7:30, 8:30, etc., every hour on the half-hour until 10:30 p. m. Then, at 11 p. m., 1 a. m., and 3 a. m. the aluminum hydroxide dose is increased to four tablets (2.6 gm.) and, unless milk allergy is present, 240 cc. of whole milk is given in addition on each of these three hours. As to the no. 2 and no. 3 tablets, the daily dose is nine tablets crushed (or capsules). Usually with the above 44 tablets (28.6 gm.) of aluminum hydroxide, the schedule will call for six no. 2 and three no. 3 tablets, that is, one no. 2 at 7 and 9 a. m. and 1, 3, 7 and 9 p. m. with one no. 3 at 11 a. m. and 5 and 11 p. m. with the first night feeding if bowel habits continue to be normal. The author stresses that the more frequent the medication the better and warns that the dose and frequency should not be cut for a minimum of four and one-half months. Unlimited diet was successfully given in 921 of the 1,000 ulcer patients treated. The advantages of this treatment include the

following factors. 1. It presents immediate evidence of inadequate therapy. 2. It permits a more nutritious diet. 3. Because of the rapid disappearance of the niche under heavier therapy, the differentiation of malignant from benign gastric ulcer is aided. 4. Separation of surgical from medical hemorrhagic cases is accomplished in 24 hours. A patient who bleeds on "heavy" therapy is not likely to stop on further medical treatment. 5. Over 95% of the obstructed, nonstenotic cases may be salvaged and the surgical cases are apparent immediately. 6. Ulcer patients like to eat and unlimited diet adds to their security. 7. Serious complications are diminished when this method is followed. 8. The period between cessation of therapy and recurrence is greatly extended. The fact that the average ulcer patient was seen by his physician about every six weeks, or about three or four times, and the long symptom-free period greatly diminishes the cost of treatment of peptic ulcer.

Postgraduate Medicine, Minneapolis

14:465-562 (Dec.) 1953. Partial Index

- Place of Antihistaminics in Treatment of Allergic Disorders. J. M. Sheldon.—p. 465.
 Metastatic Manifestations as Presenting Symptoms of Primary Cancer of Lung. S. A. Leader and R. J. Borgerson.—p. 470.
 Evaluation of Present-Day Treatment of Peptic Ulcer. H. M. Pollard.—p. 481.
 Postphlebitic and Varicose Vein Stasis. W. J. M. Scott.—p. 494.
 Transverse and Oblique Muscle-Splitting Abdominal Incisions. L. T. Palumbo and I. A. Katz.—p. 503.
 Use of Nylon Mesh in Repair of Abdominal Wall Defects. B. B. Landry.—p. 510.
 Value of Operative Cholangiography. A. Behrend and B. Greenspan.—p. 514.
 Transthoracic Dorsolumbar Sympathectomy. W. P. Kleitsch.—p. 519.
 Acute Nonbacterial Gastroenteritis. R. G. Hodges.—p. 525.
 Treatment of Acute Bacterial Meningitis in Infants and Children. M. H. D. Smith and G. W. Herring.—p. 540.
 Pediatric Responsibility to Children with Speech Defects. H. Bloomer.—p. 546.

Treatment of Acute Bacterial Meningitis.—The study reported by Smith and Herring was designed to evaluate the results obtained when all patients with "purulent meningitis" were treated according to the same regimen, regardless of causative organism. Bacteriological studies were carried out so that it would be possible in retrospect to evaluate the treatment in each type of meningitis. Of the 98 patients with meningitis admitted to the contagious disease service of the Tulane Pediatric Department at Charity Hospital, 86 were included in the present analysis. On admission a lumbar puncture was performed and the pressure was determined; spinal fluid was obtained for smear, culture, cell count, and chemical analysis. The patient was then given sodium sulfadiazine intravenously (50 mg. per kilogram of body weight) and aqueous penicillin (200,000 units intravenously). At the same time sulfadiazine was given by mouth or by stomach tube (100 mg. per kilogram of body weight), also chloramphenicol (100 mg. per kilogram of body weight). Subsequent medication consisted of sulfadiazine (150 mg. per kilogram of body weight daily, divided into four or six doses); chloramphenicol (250 mg. every 6 or 8 hours, depending on the size of the child); and aqueous penicillin (200,000 units intramuscularly every 8 hours). Treatment was continued for a minimum of six days or until the patient had been afebrile for 48 hours, whichever was longer. All of the patients were less than 10 years old, and 51, or considerably over half, of the 86 children were less than 2 years old; that is, they belonged to the age group in which mortality is likely to be highest. Seven of the 86 children died (8.1%). Bacteriological studies showed that in 32 patients *Hemophilus influenzae* was the causative agent, in 26 the meningococcus; in 14 the pneumococcus. In 14 the causative agent could not be identified. Analysis of the data suggests that, where reliable bacteriological help is not available, the above three drugs in combination may be used in the treatment of any child, more than 2 to 3 months of age, with purulent meningitis with expectation of a satisfactory outcome. An unusually high incidence of complications in patients with *H. influenzae* meningitis who were treated with the palmitate-ester of chloramphenicol suggests that this compound is to be avoided in children who have severe, acute infections.

Proc. Staff Meet., Mayo Clinic, Rochester, Minn.

28:673-704 (Dec. 2) 1953

SYMPOSIUM ON MIGRAINE

- *Migraine: Diagnosis and Treatment with Emphasis on Migraine-Tension Headache, Provocative Tests and Use of Rectal Suppositories. G. A. Peters.—p. 673.
 Ocular Manifestations of Migraine: Report of 4 Cases of Hemianopsia. R. W. Hollenhorst.—p. 686.
 Some Psychiatric Aspects of Migraine. M. E. Giffin.—p. 694.
 Male Hypogonadism: III. The Testis in Pituitary Dwarfism. A. Albert, L. O. Underdahl, L. F. Greene and N. Lorenz.—p. 698.

Diagnosis and Treatment of Migraine and Tension Headache.—Periodicity and recurrence, positive family history, cortical phenomena, gastrointestinal disturbance, unilateral nature as well as shifting location of pain in the head, and positive response to ergotamine products indicate a diagnosis of migraine. If most or all of these characteristics are present, the migraine is typical, but oftener it appears in an atypical form. Typical migraine has three vascular phases, namely (1) vasoconstriction, (2) vasodilatation, and (3) edema. During the usually short (half hour), prodromal phase vasoconstriction involving the intracranial arteries occurs and produces scotoma, hemianopsia, paralysis, diplopia, paresthesia, and aphasia. During vasodilatation, headache is experienced, and associated symptoms are anorexia, nausea, vomiting, diarrhea, dizziness, fever, palpitation, and excessive perspiration and urination. There may be flushing or pallor of the face, reddening of the conjunctivas, and nasal congestion. Although the stage of edema is not commonly seen, when observed, it is characterized by swollen, hard, and tender extracranial vessels on the side of the headache. The throbbing headache of the vasodilating phase evolves into a constant sharp pain with tenderness, usually in the frontal, temporal, and parietal regions, that lingers until the attack has subsided. During this phase vasoconstrictive agents are not only ineffective but may aggravate the pain. The history is the most important diagnostic aid, but provocative tests with nitroglycerin sublingually, histamine subcutaneously, or nicotinic acid are helpful. "Tension headache" is a pain in the head arising from "tension," a state of nervous hyperirritability, which results from emotional stimulation or conflict. Migrainous patients often say, "I have two kinds of headache" and describe the dull, generalized headache of tension type and a severer type that comes periodically, perhaps once or twice a week or month. This is throbbing, unilateral (although it can be bilateral), and associated with nausea, photophobia, and perhaps vomiting. The migraine headache responds to ergotamine products, while the tension headache will not. Migraine is almost always associated with nervous tension. Drug therapy is usually enough to abort a mild attack, but, when moderate or severe, the migrainous attack becomes resistant to drug therapy and at times nothing is effective except sleep-inducing agents. The different vascular phases of migraine must be considered during treatment. Thus, during the early vasoconstriction, vasodilators such as nicotinic acid, in doses of 100 to 200 mg. by mouth, may abort the cortical phenomena, or inhalation of 10% carbon dioxide with 90% oxygen may be used, if nicotinic acid is not effective. During vasodilatation the vasoconstricting drugs are most important. However, many patients will get relief from simple measures such as aspirin or rest. One of the best vasoconstricting preparations is cafergot, a tablet containing 100 mg. of caffeine alkaloid and 1 mg. of ergotamine tartrate. For severer attacks, dihydroergotamine is recommended. Patients who have migraine as well as tension headaches must learn to rest and relax, to avoid fatigue. While migraine cannot be cured, much relief can be provided.

Southwestern Medicine, El Paso, Texas

34:433-480 (Dec.) 1953

- Use of Anticoagulant Phenylindanedione in Ambulatory Patients. F. W. Drinan, H. Sise and W. C. Moloney.—p. 450.
 Rheumatic Activity in Patients with Mitral Stenosis Undergoing Valvuloplasty: Pathological Aspects. J. P. Decker, C. V. Hawn and S. L. Robbins.—p. 461.
 Id.: Clinical Aspects. W. F. McNeely.—p. 461.
 Diagnosis of Mitral Regurgitation. W. H. Abelman.—p. 462.
 Peyronie's Disease (Plastic Induration of Penis or Fibrous Cavernositis). R. F. Thompson.—p. 463.

for the administration of 1 gm. of streptomycin is no more difficult than that required for the administration of 200,000 units of penicillin in aqueous suspension. Combined treatment with streptomycin parenterally and sulfathiazole orally proved highly effective in both gonococcal and nongonococcal urethritis. Where an immediate microscopic diagnosis cannot be made, concurrent combined therapy with streptomycin and sulfathiazole is recommended for the treatment of urethritis in preference to penicillin therapy that is ineffective in the treatment of most patients with nongonococcal urethritis and carries with it the risk of masking the development of syphilis.

British Medical Journal, London

2:1389-1442 (Dec. 26) 1953

- Nephrotic Syndrome. J. R. Squire.—p. 1389.
 Treatment of Blood Disorders with A.C.T.H. and Cortisone. Second Report to Medical Research Council.—p. 1400.
 Clinical Spectrum of Obesity. J. H. Sheldon.—p. 1402.
 *Assessment and Results of Obesity. H. M. Sinclair.—p. 1404.
 Maylard-Sonnenburg Method of Intestinal Anastomosis. W. J. Moore and J. Forrest-Hamilton.—p. 1407.
 Penta-Erythritol Tetranitrate in Treatment of Angina. D. Weltzman.—p. 1409.
 Appendicitis in Course of Measles. W. H. Galloway.—p. 1412.
 Laryngeal Microphone as an Aid to Treatment of Bulbar Poliomyelitis. F. D. Stott.—p. 1414.

Assessment and Results of Obesity.—Obesity, in which the amount of body fat is greater than normal, should be distinguished from overweight, in which the body weight is greater than normal in relation to such factors as race, sex, body type, height, and age. Obesity cannot be satisfactorily assessed by measuring the body weight, but it can be estimated with reasonable accuracy in adults by determining the thickness of the subcutaneous tissue, in which approximately half the amount of fat in the body is found. The problem of assessment is more complicated in children, because of the spurts in growth to which they are subject and because the distribution of subcutaneous fat varies with age. Overnourishment during growth, which leads to early maturity and a shortened life span in the lower animals, is probably harmful to children. Statistics show that at all ages men and women who are overweight have a higher mortality than the average, and the greater the degree of obesity the greater the mortality. Obesity is a forerunner of diabetes from middle life onward in fully 90% of the cases, and atherosclerosis is most frequent among the obese. Both of these conditions are characterized by an increase in the formation of cholesterol. Hereditarily obese mice in the prediabetic phase may be likened to patients with hypothalamic obesity; both have increased lipogenesis, which causes them to overeat. Diabetes characterized by a high degree of insulin resistance develops by the 9th or 10th week of life in these mice and results in their premature death. Obese mice in which insulin-resistant diabetes has appeared may be likened to the middle-aged obese diabetic; both have hypercholesterolemia. There is no relation between the serum cholesterol level and the habitual dietary intake of cholesterol, but increases in the amount of dietary fat, which tend to produce obesity, will raise the serum cholesterol and result in atherosclerosis. Weight reduction substantially lowers mortality and decreases the incidence of diseases connected with obesity among the overweight.

Dermatologica, Basel

107:369-468 (No. 6) 1953. Partial Index

- Recent Studies on Alkali Neutralization and Alkali Resistance of the Skin. A. Wacek.—p. 369.
 *Erythema Multiforme Exudativum; Etiological Study of Idiopathic Type. M. Ruiter and H. Hamminga.—p. 418.

Erythema Multiforme Exudativum.—In recent years internists, rather than dermatologists, emphasized the great importance of *Mycobacterium tuberculosis* and *Streptococcus hemolyticus* as causative agents for erythema multiforme exudativum. At the dermatological department of the University of Groningen, Netherlands, 17 patients with typical erythema multiforme exudativum, corresponding in every respect with the criteria established by Hebra, were studied by the authors concerning these two causative agents. Results of Pirquet's and Mantoux tests, roentgenologic examination of the lungs of the patients,

otolaryngological and dental examination for local foci, and serologic examinations for streptococcal infections did not furnish any evidence in these patients of either causative agent. The authors believe this discrepancy can be explained by the fact that those workers have not sufficiently differentiated the classic forms of erythema multiforme exudativum from the somewhat similar erythema multiforme syndrome. The cutaneous manifestations of the erythema multiforme syndrome are much less characteristic than the well-defined patch or the flat papule described by Hebra as the primary florescence of a typical case of erythema multiforme exudativum. While the simultaneous occurrence of erythema nodosum has not been observed with the idiopathic type, such combined occurrence is not rare with the erythema multiforme syndrome, particularly in those cases in which internal disease processes, particularly tuberculous or streptococcal infections, and occasionally even drug hypersensitivity, form the basis for the cutaneous manifestations. While the causative factors of erythema multiforme exudativum are still unknown, the syndrome can be produced by many different causative factors. Any clinical diagnosis that is not based on morphological factors and is, therefore, not sufficiently distinctive must lead to errors. In the future the study of the causative factors must distinguish sharply between the two discussed groups on the basis of clinical morphology.

Deutsche medizinische Wochenschrift, Stuttgart

79:1-68 (Jan. 1) 1954. Partial Index

- Pathogenesis and Diet in Hypertension. H. Staub.—p. 1.
 Myocardial Infarction. F. Lange.—p. 6.
 Primary Pulmonary Right Cardiac Insufficiency. K. Spang.—p. 9.
 Incidence of Cardiac Diseases in Course of Rheumatic Fever and Drug Treatment of Rheumatic Carditis and Related Diseases. F. Grosse-Brockhoff.—p. 15.
 *Recent Developments in Treatment of Initial Phase of Apoplectic Attack with Aminophylline Preparation (Euphylline). F. Mainzer.—p. 37.
 *Treatment of Arterial Hypertension with Rauwolfia Alkaloid Reserpine (Serpasil). G. Damm and H. Trautner.—p. 39.

Aminophylline in Initial Phase of Apoplectic Attack.—In 1949, Mainzer introduced the treatment of the initial phase of an apoplectic attack with intravenous injections of aminophylline (Euphyllin). Up to December, 1952, 126 cases were reported by the author in previous papers and by other workers in which favorable results were obtained with this method. It appeared that the aminophylline is fully effective only when given in the ischemia-conditioned functional phase of the apoplectic attack. The percentage of success is reduced from 80 to 45% in patients to whom the drug was given within five hours after the attack. The drug should be given within one hour of the initial attack, although coma and mild paresis disappeared in two of the author's patients who were given the drug within eight hours, and one patient responded favorably to the drug given 11 hours after the initial attack. The author emphasizes the importance of the intravenous route of administration, while oral, rectal, or intramuscular administration may result in failure. Refractory headache in patients with cerebral arteriosclerosis and hypertension (one illustrative case in an 84-year-old woman is described) responded favorably to aminophylline. Increased permeability of the blood-cerebrospinal fluid barrier produced by the aminophylline is probably responsible for its effect in the initial stage of the apoplectic attack.

Rauwolfia Alkaloid Reserpine in Hypertension.—Reserpine (Serpasil), was given a therapeutic trial in 44 patients with arterial hypertension in whom the high blood pressure had not been significantly reduced by bed rest, salt-free diet, and occasional digitalization for three to six weeks. These measures were continued after the institution of reserpine. The drug was given in three tablets, each of 0.5 mg., daily; three patients received up to six tablets daily. Marked lowering of the blood pressure was obtained in 20 of the 44 patients with all types of arterial hypertension. The drop in blood pressure exceeded that obtained with the usual hospital procedures. Parallel improvement of subjective complaints was observed in many patients. Lowering of blood pressure resulted from combined treatment with reserpine and Nepresol (1, 4-dihydrazinophthalazine) in nine patients who did not respond to reserpine alone. A condition

FOREIGN

Archiv für Kinderheilkunde, Stuttgart

147:209-312 (No. 3) 1953. Partial Index

Contribution to Therapy of Hemorrhagic Internal Pachymeningitis (Hematomia Durae Matris). F. Koch.—p. 213.

Pathogenesis of Adrenogenital Syndrome. J. R. Bierich and C.-D. Voigt.—p. 225.

Present Status of Infectious Diseases. H. Zischinsky.—p. 237.

Problems of Parotitis; Mumps Meningitis and Significance of Diastase in Mumps. H. Zischinsky and E. Hausmann.—p. 244.

*Chylous Ascites in Infants in Course of Primary Intestinal Tuberculosis. H. Beyer.—p. 249.

Chylous Ascites in Infants with Primary Intestinal Tuberculosis.—The occurrence of chylous ascites is reported in a 5½-month-old baby boy in whom primary intestinal tuberculosis was diagnosed on roentgenologic examination. Severe inflammatory (tuberculous) changes of the small intestine were observed. Multiple intra-abdominal calcifications demonstrated the extensive involvement of the lymph nodes of the mesentery. Chyle stasis may be considered in addition to inflammatory changes of the walls of the chyliferous vessels (tuberculous lymphangitis). An inflammatory process was suggested in the author's case and in other cases collected from the literature by the fact that recovery resulted from repeated abdominal puncture or pneumoperitoneum. Both procedures are not to be considered as causal treatment. The abdominal puncture in the author's case probably stimulated the peritoneum in the sense of absorption besides causing mechanical discharge. The protein values of the ascitic fluid, which initially were higher than those in the blood, with an increased amount of globulin, also favored the concept of an inflammatory component. In the retroperitoneal space, which may be assigned a key position in the causation of the chylous ascites, are seen converging (1) the lymph vessels of the lower extremities and the pelvic organs; (2) the lymph vessels of a major portion of the deeper layers of the abdominal wall; (3) the lymph vessels of the kidneys, adrenals, and the inferior surface of the diaphragm; (4) the lymph vessels of the stomach, spleen, pancreas, and liver, which are connected with the celiac lymph nodes; and (5) the chyle vessels of the intestine. The lymph nodes of the retroperitoneal space form a chain with the lymph vessels that run toward the cranium. This chain passes along the vena cava inferior and the abdominal aorta and is connected with the iliac-lumbar lymph nodes that pass along the iliac artery and vein. These anatomic relations explain some of the idiopathic cases reported in the literature. The author believes that the extent of the participation of the chyliferous vessels in the distal portions of the ileum-jejunum segment is so extensive that a "collateral circulation" does not become effective because of the involvement of numerous anastomoses of the lymph system in the mesentery, or that the exudation from the chyliferous vessels must be sufficient for the production of a chylous ascites.

British Journal of Venereal Diseases, London

29:121-196 (Sept.) 1953

Arthritis and Venereal Urethritis. D. K. Ford.—p. 123.

*Therapeutics of Non-Gonococcal Urethritis. A. H. Harkness.—p. 134.

Role of Organisms of Pleuropneumonia Group in Human Genital Infections. C. S. Nicol and D. G. F. Edward.—p. 141.

*Comprehensive Treatment for Gonococcal and Non-Gonococcal Urethritis. T. Lyall.—p. 151.

Case of Reiter's Syndrome Treated with Chloramphenicol. D. Wheatley.—p. 162.

Masked Perforation of Gastric Ulcer in Case of Tabes Dorsalis. J. O. Doyle and D. J. Campbell.—p. 164.

Simple Staining Method for Trichomonas Vaginalis. W. Fowler.—p. 166.

Potassium Iodide in Treatment of Syphilis. P. Keen.—p. 168.

An Investigation into Use of Cardioliipin Antigens: III. Choice of Formula for Cardioliipin Wassermann Antigen for Use in Whitechapel Wassermann Technique. I. N. O. Price.—p. 175.

Treatment of Gonorrhoea with Terramycin: Comparison with Penicillin. R. R. Willcox.—p. 179.

Therapeutics of Nongonococcal Urethritis.—Of 769 patients with primary nongonococcal urethritis of venereal origin, (33 of whom had Reiter's disease), 208 were treated with oxytetracycline (Terramycin), 316 with chlortetracycline (Aureo-

mycin), 93 with chloramphenicol (Chloromycetin), 86 with streptomycin sulfate, 52 with dihydrostreptomycin, and 14 with streptomycin calcium chloride. The dosage of oxytetracycline, chlortetracycline, and chloramphenicol was 0.5 gm. every six hours for four days; when blood-borne complications were present the treatment was continued for 10 to 14 days. The dose of chloramphenicol was later increased to 0.75 gm. given every six hours, as the lower dose was frequently ineffective. The streptomycin preparations were given in a dose of 1 gm. in 4 cc. of water once daily for five days and twice daily for 10 to 14 days in cases of Reiter's disease. Chlortetracycline and oxytetracycline in particular attain a high concentration in the urine, and the therapeutic effect can be enhanced by restricting fluid intake by one-half during the treatment and by instructing the patients to pass urine frequently however small the amount. Infection with Trichomonas vaginalis was present in 59 patients and was resistant to the antibiotic treatment. Vaginal and/or cervical swabs gave positive cultures for pleuropneumonia-like organisms in 28 of 55 patients (51%); six strains were completely insensitive to dihydrostreptomycin and chlortetracycline in concentrations that would be present in the blood, moderately sensitive to streptomycin and chloramphenicol, and very sensitive to oxytetracycline in vitro. Elementary bodies of inclusion conjunctivitis type were seen in 10 patients. In patients who responded to treatment, the discharge ceased in two to four days and symptoms disappeared in one to seven days. The following cure rates were obtained: 86.5% with oxytetracycline; 63% with chlortetracycline; 39% with streptomycin; and 36% with chloramphenicol. A cure was also obtained with oxytetracycline in 24 of 31 patients who had not responded to chlortetracycline. The apparent superiority of oxytetracycline was confirmed by statistical analysis in a second series of 156 patients who were treated with the same drugs as the 769 patients but who were given these drugs at random to avoid any inclination on the part of the physician to give patients with severe disease the drug that was thought to be best, and to patients with mild disease the drug that might seem to effect a certain cure. The following cure rates were obtained: 87% with oxytetracycline; 59% with chlortetracycline; 38% with streptomycin; and 31% with chloramphenicol. Patients with Reiter's disease were best treated with fever therapy combined with oxytetracycline or chlortetracycline.

Treatment for Gonococcal and Nongonococcal Urethritis.—A search was made for a therapeutic procedure that would achieve success in the treatment of both gonococcal and nongonococcal urethritis when the circumstances were such that a microscopic diagnosis before the treatment was impracticable and at the same time would eliminate the risk of the development of a coincidentally acquired syphilis. After an extensive review of the literature on treatment of gonococcal and nongonococcal infections of the urinary tract and of syphilis with sulfonamides alone, with various antibiotics, and with sulfonamides combined with antibiotics, it was decided that every patient with urethritis, whether gonococcal or nongonococcal, should be given a course of combined streptomycin-sulfathiazole therapy. Thus 325 men with gonorrhea and 215 men with nonspecific urethritis treated in two clinics between July 1, 1952, and March 31, 1953, were given a dose of 1 gm. of streptomycin or dihydrostreptomycin by deep subcutaneous injection together with 6 gm. of sulfathiazole in four divided doses daily for five days (total dose: 5 gm. of streptomycin and 30 gm. of sulfathiazole). An average cure rate of 90% was obtained with this combined therapy in 292 patients with gonorrhea and nonspecific urethritis followed up for 12 or more days after initiation of treatment; 169 (92.8%) of 182 patients with gonorrhea and 94 (85.4%) of 110 patients with nonspecific urethritis were considered successfully treated. Urethral discharge was eliminated within 48 hours of the start of the treatment in 238 patients (96.7%) of 246 patients with gonorrhea and in 152 (92.1%) of 165 patients with nonspecific urethritis examined on the second day of the treatment. No toxic effects attributable to streptomycin were observed. Of the 540 patients treated, 394 were followed up for five days or more, and only 5 (1.26%) of the 394 showed toxic signs attributable to sulfathiazole. The injection technique required

for the administration of 1 gm. of streptomycin is no more difficult than that required for the administration of 200,000 units of penicillin in aqueous suspension. Combined treatment with streptomycin parenterally and sulfathiazole orally proved highly effective in both gonococcal and nongonococcal urethritis. Where an immediate microscopic diagnosis cannot be made, concurrent combined therapy with streptomycin and sulfathiazole is recommended for the treatment of urethritis in preference to penicillin therapy that is ineffective in the treatment of most patients with nongonococcal urethritis and carries with it the risk of masking the development of syphilis.

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 Primary Pulmonary Right Cardiac Insufficiency. K. Spang.—p. 9.
 Incidence of Cardiac Diseases in Course of Rheumatic Fever and Drug Treatment of Rheumatic Carditis and Related Diseases. F. Grosse-Brockhoff.—p. 15.
 *Recent Developments in Treatment of Initial Phase of Apoplectic Attack with Aminophylline Preparation (Euphylline). F. Mainzer.—p. 37.
 *Treatment of Arterial Hypertension with Rauwolfia Alkaloid Reserpine (Serpasil). G. Damm and H. Trautner.—p. 39.

Aminophylline in Initial Phase of Apoplectic Attack.—In 1949, Mainzer introduced the treatment of the initial phase of an apoplectic attack with intravenous injections of aminophylline (Euphyllin). Up to December, 1952, 126 cases were reported by the author in previous papers and by other workers in which favorable results were obtained with this method. It appeared that the aminophylline is fully effective only when given in the ischemia-conditioned functional phase of the apoplectic attack. The percentage of success is reduced from 80 to 45% in patients to whom the drug was given within five hours after the attack. The drug should be given within one hour of the initial attack, although coma and mild paresis disappeared in two of the author's patients who were given the drug within eight hours, and one patient responded favorably to the drug given 11 hours after the initial attack. The author emphasizes the importance of the intravenous route of administration, while oral, rectal, or intramuscular administration may result in failure. Refractory headache in patients with cerebral arteriosclerosis and hypertension (one illustrative case in an 84-year-old woman is described) responded favorably to aminophylline. Increased permeability of the blood-cerebrospinal fluid barrier produced by the aminophylline is probably responsible for its effect in the initial stage of the apoplectic attack.

Rauwolfia Alkaloid Reserpine in Hypertension.—Reserpine (Serpasil), was given a therapeutic trial in 44 patients with arterial hypertension in whom the high blood pressure had not been significantly reduced by bed rest, salt-free diet, and occasional digitalization for three to six weeks. These measures were continued after the institution of reserpine. The drug was given in three tablets, each of 0.5 mg., daily; three patients received up to six tablets daily. Marked lowering of the blood pressure was obtained in 20 of the 44 patients with all types of arterial hypertension. The drop in blood pressure exceeded that obtained with the usual hospital procedures. Parallel improvement of subjective complaints was observed in many patients. Lowering of blood pressure resulted from combined treatment with reserpine and Nepresol (1, 4-dihydrazinophthalazine) in nine patients who did not respond to reserpine alone. A condition

similar to collapse resulted from the pronounced reduction of blood pressure in two patients with severe arteriosclerotic changes. It seems that reserpine reduces the blood pressure by exerting an effect on the central nervous system. Lowering of blood pressure was likewise obtained in some patients with phenobarbital, bed rest and salt-free diet. Phenobarbital also acts as a depressor agent on the central nervous system.

East African Medical Journal, Nairobi

30:399-446 (Oct.) 1953. Partial Index

- Anthrax Meningo-Encephalitis. A. B. Raper.—p. 399.
 *Toxicity of Chloroquine in Hepatic Amoebiasis in Africans. J. Wilkinson.—p. 403.
 Examination of Red-Blood Counts, Haemoglobin, Packed Cell Volume, Serum Iron and Iron Continuing Capacity of Blood and Serum of Small Series of Pregnant Women at Mulago Hospital. E. G. Holmes.—p. 427.

Toxicity of Chloroquine in Hepatic Amebiasis.—Chloroquine sulfate was used in the treatment of 112 Bantu Africans with hepatic amebiasis. Toxic reactions were noted in 52, and were severe in 10. The toxic effects were unpleasant, but not fatal, and they were directly related to the dosage of the drug and to the length of treatment. Women had severer toxic reactions than men. Vomiting sometimes required that use of the drug be stopped. The toxic effects were reversible, passed off within 48 hours after medication had been discontinued, and caused no permanent damage. Chloroquine may have a temporary toxic effect on the nervous system. It is assumed that the greater incidence of toxic reactions in these patients was caused by their poor physical condition. They were smaller in stature and lighter in weight than Europeans, also they were malnourished. Chloroquine should be used with caution in persons in whom blurring of vision and giddiness may have dangerous results, such as in drivers and pilots. These should not be allowed to continue their work while being treated with chloroquine, at least in the doses required in amebiasis.

Edinburgh Medical Journal

60:461-494 (Dec.) 1953

- Cancer of the Larynx. I. S. Hall and J. F. O. Mitchell.—p. 461.
 Renal Sclerosis, "Post-Radiation Nephritis" Following upon Irradiation of Upper Abdomen. H. Russell.—p. 474.

Electroencephalography & Clin. Neurophys., Montreal

5:1-162 (Feb.) 1953. Partial Index

- Analysis of Central Responses to Photoc Stimulation in Normal Adults. A. C. Mundy-Castle.—p. 1.
 EEG and Reaction to Photoc Stimulation as Index of Anxiety-Proneness. G. A. Ulett, G. Gleser, G. Winokur and A. Lawler.—p. 23.
 Occurrence of Sharp Waves, Spikes and Fast Activity in Supratentorial Tumours. L. Kirstein.—p. 33.
 Electroencephalographic Sequelae of Spontaneous Subarachnoid Haemorrhage. J. N. Walton.—p. 41.
 Electroencephalographic Studies of Encephalopathies: II. Serial Studies in Tuberculous Meningitis. R. C. Turrell, W. Shaw, R. P. Schmidt and others.—p. 53.
 *Value of Electroencephalography for Differential Diagnosis of Neurosis and Organic Brain Disease. H. C. Stehle.—p. 65.
 Spontaneous Excitation of Visual Cortex and Association Areas—Lambda Waves. C. C. Evans.—p. 69.
 Electroencephalographic Changes in Siblings with Hypocalcemia Due to Hypoparathyroidism. C. Hamsted and S. Brandt.—p. 101.
 Simple Electronic Stimulator Suitable for Peripheral Nerve and Skin Sensory Testing. G. H. Bishop.—p. 105.
 New Multilead Electrode for Intracerebral Electrography in Man. R. von Baumgarten.—p. 107.

Electroencephalography in Differentiation of Neuroses and Organic Brain Disease.—Stehle feels that because some types of organic brain damage and certain types of epilepsy are symptomatically difficult to distinguish from neurosis, it should be advantageous to obtain electroencephalographic studies on all neurotics. However, since such mass electroencephalography is not practical, patients should be screened by the physician or the electroencephalographer so that recordings are made only in cases in which there is a reasonable expectation of significant electroencephalographic findings. For some years this policy has been carried out at the author's clinic. The present study was undertaken to assess the value of electro-

encephalography as an aid to the diagnosis of neurosis using currently accepted criteria for referral. Answers were sought to the following questions: 1. What is the type and incidence of electroencephalographic abnormality in patients with a presumed diagnosis of neurosis who are referred for electroencephalographic examination? 2. With what "neurotic" symptoms do electroencephalographic abnormalities correlate? The 263 veteran patients studied by electroencephalography were highly selected, not representative of all neurotics, but only those who (though presumably neurotic) were suspected of having organic brain disorder. Awake and sleep electroencephalograms were obtained in 200 cases and only awake records were obtained in 63 cases. Electroencephalograms made during sleep in 200 patients revealed significant abnormalities with clinical correlation in 19%, seizure discharges accounting for 14%. In the group examined only when awake, the incidence of significant abnormalities with clinical correlation was much lower. Epileptic seizure discharges were never recorded in the electroencephalogram made while awake but only during the drowsy or sleep state. This seems to indicate the advantage of making studies during sleep. The author feels that the following generalization is permissible; the less severe the abnormality the more essential is electroencephalographic study during sleep. The diagnostic use of electroencephalographic study appears indicated in neurotic patients with symptoms such as major convulsions, abdominal complaints, amnesia, visual disturbances, rage attacks, nausea and vomiting, and weakness-fainting-blackouts. This appears especially true if the clinical history gives any indication of a previous head injury or cerebral infection. It was found that 27.5% of those showing normal electroencephalographic records during sleep gave a history of cerebral trauma or infection, but 45% of those showing abnormal electroencephalographic findings gave such a history. In the groups with psychomotor, thalamic, and hypothalamic epilepsy 50% had a history of head injury.

Glasgow Medical Journal

34:481-518 (Nov.) 1953

- Observations on Haemophilia and "Christmas Disease." A. H. Imrie and A. J. V. Cameron.—p. 481.
 Rigidity of Old Age: Clinical and Pharmacological Study. J. C. Brocklehurst.—p. 486.
 *Functional Uterine Haemorrhage in Puberty and Adolescence. A. M. Sutherland.—p. 496.

Uterine Hemorrhage in Puberty and Adolescence.—Sutherland made studies on 200 girls, 20 years of age or younger, who had abnormal uterine bleeding. Of these, 179 girls were between 16 and 20 years of age. Sixteen of the 200 had been pregnant, 9 having had one delivery at full term and the other 7 having had one abortion. He is of the opinion that it is impossible to make a diagnosis of functional uterine bleeding until the endometrium has been examined histologically. Dilatation and curettage was done in all but one of the 200 girls. In the patient not subjected to curettage uterine fibroids of about the size of a four month pregnancy were present and hysterectomy was necessary. In those with a reasonably regular cycle curettage was done during the premenstrual phase. Tuberculosis of the endometrium was found in 8 cases and chronic endometritis in 10 cases. Cystic glandular hyperplasia was found in only 31 cases and endometrial atrophy in 4 cases. In the remaining 147 cases the endometrium appeared normal. An attempt was made to follow-up as many as possible of the last 50 patients. They were asked to report in two months, and subsequent attendances varied with the individual case. Two patients with endometrial tuberculosis were excluded from this follow-up. They were treated with streptomycin and *p*-aminosalicylic acid. Of the remaining 48 cases 5 could not be traced. In 20 of 43 patients, menstruation remained normal after dilatation and curettage alone during an average follow-up period of 11 months. In six others menstruation returned to normal after curettage, but abnormal bleeding recurred after an average period of six months. There was no relationship between the endometrial histology and the results of curettage. In three of six cases of endometrial hyperplasia, the curettage had no effect, and in the three others it was followed by a return to a normal cycle. The antimenorrhagic factor, which is a non-

saponifiable fraction of mammalian liver tissue suspended in a neutral base, was used in 19 of the remaining 23 patients. Cure was obtained in 12, but in 6 of these a second course of the drug had to be given. One other patient failed to return, and in the remaining six patients the antimenorrhagic factor was ineffective. Treatment with estrogen preparations proved effective in four of the six cases in which it was tried.

Journal of Bone and Joint Surgery, London

35-B:517-722 (Nov.) 1953

- Rest and Movement. G. Perkins.—p. 521.
Early Treatment of Paraplegia from Fractures of Thoraco-Lumbar Spine. F. W. Holdsworth and A. Hardy.—p. 540.
Tuberculosis of Elbow: Study of 31 Cases. J. N. Wilson.—p. 551.
Preparation and Use of Heterogenous Bone Grafts. M. Guilleminet, P. Stagnara and T. Dubost-Perret.—p. 561.
Development of Congenital Dislocation of Hip. E. W. Somerville.—p. 568.
*Tuberculosis Transmitted by Banked Bone. J. I. P. James.—p. 578.
Congenital Kyphosis. A. C. Bingold.—p. 578.
*Mesenchymoma (Angioliposarcoma) of Thigh. M. Pemberton and P. I. Cromack.—p. 584.
Parosteal Lipoma. H. A. T. Fairbank.—p. 589.
Case of Tuberculosis of Ischium. G. S. Tupman.—p. 590.
Parathyroid Osteodystrophy: Report of Case. H. J. Richards.—p. 593.
Osteoarthritis of Hip: Study of Nature and Evolution of Disease. M. H. M. Harrison, F. Schajowicz and J. Trueta.—p. 598.
Role of Capsular Changes in Osteoarthritis of Hip Joint. G. C. Lloyd-Roberts.—p. 627.
Bone Cysts of Osteoarthritis. J. W. Landells.—p. 643.
Recovery in Partly Paralyzed Muscles. D. D. B. Morris.—p. 650.

Tuberculosis Transmitted by Banked Bone.—James says that during the last year ribs from thoracoplasties performed in cases of pulmonary tuberculosis have been stored in the bone bank. The ribs have been frozen at -15 to -20 C in a solution containing penicillin and streptomycin. They have been used in a wide variety of orthopedic procedures. In the last months four tuberculous abscesses have been discovered. After removal of the infected bone chips and curettage, the wounds healed without further incident; it is possible that further manifestations may appear. This unfortunate sequel makes it obvious that such material is unsuitable for bone grafting. The four cases are briefly described.

Mesenchymoma (Angioliposarcoma) of Thigh.—According to Pemberton and Cromack the term mesenchymoma was first applied by Gilmour in 1943 to an unusual recurring tumor composed of embryonic connective tissue. This tumor appeared histologically benign, but recurrences developed after every attempt at local removal. Since then, three more cases of a similar character have been described by Symmers and Nangle (1951), who also recorded the fatal termination of Gilmour's case. Pemberton and Cromack present two cases of mesenchymoma occurring in the thigh of two women, aged 47 and 50, respectively. In the first patient the limb was removed by disarticulation at the hip joint, all the muscles being divided as high as possible. One year after the operation the patient was in good health and there was no sign of recurrence. The tumor was ovoid and soft and measured 19 by 15 cm. It was partly surrounded by a thin diaphanous capsule. On gross section the tumor was separated into lobules by fibrous septa. It encircled the femur for almost three-quarters of its circumference, extended upwards from the knee joint to the uppermost limits of the vastus intermedius. Although it was mainly confined to the quadriceps group, it involved also the insertion of the adductor muscles into the shaft of the femur. Microscopic examination disclosed angioblastic, fibroblastic, and lipoblastic tissues. In the second patient an extensive local excision had been done at another hospital. When one year later a recurrence was observed, it was removed together with the fascia of the surrounding muscles. There was a further recurrence one year later; local excision was again undertaken. There was yet another local recurrence nine months later, again treated by excision. At the fourth operation it was obvious that the tumor was infiltrating the surrounding tissues. Amputation was, therefore, undertaken four years after the onset of symptoms and three years after the first local excision. One year after amputation there was no evidence of a return of the lesion. The term mesenchymoma is appropriate, because of the resemblance of the primitive fibroblastic component of the tumor to mes-

enchymal tissue. Confusion in terminology may arise, however, because the term mesenchymoma has also been applied to other tumors such as myxomas, mixed malignant tumors of mesodermal origin, and even to undifferentiated sarcomas. The two cases presented conform to the pattern of Gilmour's case to which he applied the description mesenchymoma. Since recurrence seems invariably to follow local removal a relatively drastic surgical policy is justifiable and indeed necessary.

Journal of Laryngology and Otology, London

67:701-778 (Dec.) 1953

- Vestibular and Acoustic Symptoms and Other Phenomena Following Treatment with Streptomycin and Dihydrostreptomycin. H. C. Andersen, H. H. Ohrt and others.—p. 701.
Elastic Tissue in Middle-Ear Cavity. M. Harty.—p. 722.
Blown Plastic Inlays in Mastoid Surgery. D. A. Draffin.—p. 730.
Testing for Otosclerosis, and Description of Quantitative Gellé Test. D. MacFarlan.—p. 740.
Pathological Changes in Blood-Vessels and Nerves of Oesophagus Due to Corrosion. B. Gušić.—p. 745.

Lancet, London

2:1323-1366 (Dec. 26) 1953

- Education for Elizabethans. Lord Radcliffe.—p. 1323.
Investigation of Obliterative Arterial Disease of Lower Limb. D. Messent, R. E. Steiner and J. F. Goodwin.—p. 1324.
Reflections on Diabetes Mellitus: Answers to Questionary. G. F. Walker.—p. 1329.
*Intravenous Procaine in Treatment of Chest-Wall Injuries. P. G. Bevan.—p. 1332.
Two Cases of Myxoedema Attributed to Iodide Administration. M. E. Morgans and W. R. Trotter.—p. 1335.
Alopecia, Optic Atrophy, and Peripheral Neuritis of Probably Toxic Origin. W. J. C. Symonds.—p. 1338.
Infants' Legs and Sleeping Position. M. P. Pick.—p. 1339.
Mycetoma of Testis. P. R. R. Clarke.—p. 1341.

Intravenous Use of Procaine in Chest Wall Injuries.—Bevan tried procaine for the relief of pain associated with chest wall injuries. The injury was often minor, though some cases of major trauma were also included. The pain was of three types—localized to the site of injury, diffusely spread over a wide area of the chest, or referred forward along the intercostal nerves. Coughing, inspiration, and movement of the trunk or upper limb were often much restricted. The procaine was injected into a vein of the forearm from a 20 ml. syringe. After various modifications, the standard dose adopted for a normal adult was 20 ml. of 1% procaine, with adjustment for age and physique. At first the injections were given slowly over 15 minutes; but later the time was reduced to 5 minutes. Each injection was given with the patient recumbent, to counteract the vasodilator effect of procaine. He then rested half an hour and was sent home by ambulance. He was seen again next day and again a few days later. The procaine was prepared in sealed 20 ml. ampuls and contained no epinephrine (Adrenaline) or bacteriostatic. Convulsions, which may lead to respiratory paralysis, and peripheral vascular failure resulting from medullary depression are dangers in procaine therapy, which are probably due to idiosyncrasy. To safeguard the patients against these threats a tray was at hand containing thiopental (Thiopentone) sodium to antagonize the convulsant action of procaine and ephedrine to combat the medullary depression. However, in giving 82 injections there was no need to use these drugs. In three cases the patient lost consciousness and in two speech was lost, but these effects were transient. In two elderly men the pulse was irregular for an hour. Pain was relieved in the large majority of the patients, and their respiratory function and general condition improved. The relief was greater in fractures than in soft tissue injury, and the benefit was greatest when the injection was given soon after the injury. The relief was immediate or was delayed for a few hours. It lasted for about 20 hours. A second injection was never so effective as the first. Estimation of procaine levels in blood and urine confirmed that procaine is excreted from the blood within an hour. Its effect over hours or days is probably not due to continuing anesthetic action but to a breaking of the vicious circle of pain to muscle spasm to pain. In control cases, intravenous injections of isotonic sodium chloride solution were of some benefit, but it was much less than with procaine.

Minerva Ginecologica, Turin

5:589-628 (Sept. 30) 1953.

- New Methods for Staining Spermatozoa and Determining Live and Dead Cells. T. Bonadonna.—p. 589.
- Infusion of Concentrated Suspension of Red Blood Cells in Obstetrics and Gynecology. L. Milani and W. Torsiglieri.—p. 595.
- *Vitamin K₁ as Antidote to Drugs with Dicumarol-Like Effect: Clinical Observations. L. Gagliardi.—p. 598.
- Experimental Studies of Corticotropin Action on Genital Apparatus of Rats (*Mus Decumanus*) After Removal of Ovaries. P. Quaini and C. Durando.—p. 606.
- Gonadotropins in Cerebrospinal Fluid. E. Revelli.—p. 611.
- Use of Quaternary Bases of Ammonium as Antiseptics in Obstetrics and Gynecology. A. Massano and S. Monticelli.—p. 618.

Vitamin K₁ and Anticoagulant Therapy.—Synthetic vitamin K₁ (Konakion) was administered to four patients receiving Marcoumar (3[1'-phenyl-propyl]4-hydroxycoumarin) and three receiving ethyl biscoumacetate (Tromexan ethyl acetate). The good effects of the vitamin, which was given orally in doses of 10 to 12 mg., became evident in most instances six hours after its administration. In one patient receiving Marcoumar, the prothrombin time was shortened from 70 to 32 seconds in 10 hours and from 32 to 28 seconds in the next 24 hours. Twelve hours after the administration of a second 10 mg. dose of the vitamin, it was reduced to 23 seconds. Equally good effects were obtained in the other six patients. Similar results have been reported by American and English authors. They, however, had given their patients a single dose of 500 mg. of the vitamin, whereas Gagliardi never used more than from 10 to 24 mg. of it. Synthetic vitamin K₁ greatly improves the prognosis of patients receiving anticoagulants with a bishydroxycoumarin-like action, because with its administration the hemorrhagic complications secondary to this therapy can be prevented.

Minerva Medica, Turin

44:1421-1456 (Nov. 14) 1953

- Disorders of Intraventricular Conduction During Total Arrhythmia. V. Nazzi and A. Anselmino.—p. 1421.
- Pneumographic Investigation of Mediastinum. E. Valentino.—p. 1431.
- *Cortisone in Treatment of Tetanus. C. Cossali and A. Biella.—p. 1435.
- Aromatic Derivative of Mustard Gas in Treatment of Tuberculous Lymphadenitis: Preliminary Note. L. Costelli.—p. 1438.

Cortisone Therapy in Tetanus.—Three patients with tetanus were given cortisone as supplement to antitoxin serum and penicillin. Although the authors could not judge what part the hormone played in attenuating the course of the disease, they say that it did have a favorable effect on the clinical course and brought relief to the patients by rapidly lowering the elevated temperature, reducing the intensity and number of spasms, and improving the patients' vital sense and appetite. The first patient, a 5-year-old girl, was hospitalized with a diagnosis of meningitis. After the presence of tetanus was established, she was given antitoxin serum, penicillin, and cortisone. She received the hormone first in two 50 mg. injections and later in one 50 mg. injection daily for a total of 1,500 mg. She recovered in about two weeks. Antiserum and penicillin were given to the second patient, a 5-year-old girl, but her already severe condition was aggravated by the therapy. Cortisone was then administered in doses of 200 mg. for one day, 100 mg. for 6 days, and 50 mg. for 4 days. There was a noticeable improvement with the cessation of spasms and recovery. The severe infection was undiagnosed in the third patient, a 64-year-old woman. A correct diagnosis was established, massive tetanus was confirmed, and, in addition to antitoxin serum and penicillin, 300 mg. of cortisone was given for three days, 100 mg. for seven days, and 50 mg. for seven days. The patient also recovered. The cortisone was very evident in this case because patients who had been treated at the same hospital died. According to the authors, this was the organism's means of defense and precluded thus enabling the specific defense system to bring about the recovery. A definitive effect of cortisone in the treatment of tetanus was evident.

Nordisk Medicin, Stockholm

50:1493-1526 (Oct. 29) 1953. Partial Index

- Athletic Heart. T. Sjöstrand.—p. 1493.
- Danger in Use of Morphine in Cor Pulmonale. S. Samuelsson.—p. 1496.
- *Development of Low Salt Syndrome During Dehydration in Patients with Cardiac Decompensation. B. Harvald and P. Astrup.—p. 1499.
- Etiology of Cerebral Palsy. O. Scheel Thomsen.—p. 1504.
- Incidence of Bacterial Contamination in Vials Used in Hospital. O. Kylin and H. Ekstrand.—p. 1507.

Development of Low Salt Syndrome During Dehydration in Cardiac Insufficiency.—Harvald and Astrup discuss the danger of the development of secondary uremia in patients with cardiac insufficiency treated with mercurial diuretics and salt poor diet. They followed 16 patients during dehydration treatment consisting of one or two mersalyl injections (1-2 ml.) weekly in connection with a salt poor diet containing only a small amount of salt daily. Powerful dehydration therapy with salt poor diet can gradually lead to the so-called low salt syndrome. The subjective symptoms of salt depletion are fatigue, apathy, thirst, anorexia, general muscular weakness, muscular spasms, and tendency toward syncope. The syndrome is accompanied by reduced renal function and abnormally high blood urea concentration, usually also hypochloremia, and possibly hypopotassemia and hyponatremia. On the development of the low salt syndrome the mersalyl medication must be stopped at once and sodium chloride given by the mouth, whereupon the symptoms disappear. When the blood urea and serum electrolyte concentrations are returned to normal the mersalyl treatment can be resumed. The diuretic effect of mersalyl is more dependent on the serum chloride concentration than on the serum sodium concentration. It is suggested that mersalyl affects the chloride resorption in the renal tubules, not, as usually assumed, the tubular resorption of sodium.

50:1595-1628 (Nov. 19) 1953. Partial Index

- *Anemia and Sideropenia After Gastrectomy. S. Wallensten.—p. 1601.
- Cortisone, Ascorbic Acid and Amyloid Formation: Clinical Considerations on Teilmann's Views Concerning Relation Between Them. G.-A. Johansson.—p. 1605.
- *Lymphosarcomas of Stomach. J. Engberg.—p. 1610.
- Acute Abdominal Disorders Due to Meckel's Diverticulum. E. Christensen.—p. 1614.
- Perforated Duodenal Ulcer and Acute Abdominal Infections During Corticotropin/Cortisone Treatment. K. Hatteland.—p. 1616.

Anemia and Sideropenia After Gastrectomy.—Wallensten's 364 cases of gastroduodenal ulcer operated on (Billroth 2) at the Serafimerlasarett consisted of 281 cases of duodenal ulcer in 201 men and 80 women, of whom 205 were under 50, and 83 cases of gastric ulcer in 58 men and 25 women, of whom 35 were under 50. On follow-up examinations with reference to postoperative anemia Vahlquist's values of 13.6 gm. per 100 cc. for men and 11.5 gm. per 100 cc. for women were taken as normal. Postoperative hypochromic anemia was found to be common after Billroth 2. Pernicious anemia did not occur. There was a high percentage of sideropenia in these anemias. The longer the time after operation, the greater was the frequency of both anemia and sideropenia. The anemia was seen oftener in women operated on before the menopause than after it. According to earlier investigations anemia is infrequent in gastric and duodenal ulcers operated on according to Billroth 1. Billroth 1 is advocated as the method of treatment for gastric ulcer and duodenal ulcer in women, but in duodenal ulcer in men Billroth 2 should continue to be the procedure, since in these cases the danger of recurrence is greater after Billroth 1. The cases should be closely followed postoperatively with regular blood control and anemia compensated by iron intravenously as oral therapy is ineffective.

Lymphosarcoma of Stomach.—From 1 to 2% of the malignant tumors of the stomach are represented by mesenchymal tumors, fully half of which are lymphosarcomas. About 600 cases of these lymphosarcomas have now been published. Recent statistics, Engberg states, show that the five year survival rate after radical operation for lymphosarcoma of the stomach is high and increasing. The importance of diagnosis is stressed. It may be extremely difficult. To date correct preoperative diagnosis has been made in only a few cases, but with the pos-

sibility of lymphosarcoma of the stomach in mind in "atypical carcinomas" diagnosis should be possible much earlier. The tumors manifest themselves at any age but occur mainly at an earlier age than carcinomas and are somewhat more frequent in men than in women. The symptoms are vague and the course is slow. In fully 50% a large palpable tumor is found or at least a definite resistance in the epigastrium is felt on the first consultation. The absence of demonstrable ascites and metastases should suggest sarcoma. In a relatively young patient in good condition with a large epigastric tumor, demonstrable roentgenologic changes in the stomach, and long history, the diagnosis of lymphosarcoma should be considered. Benzidine tests in the feces are less constantly positive and achylia is less frequent than in carcinoma. While roentgen examination is a valuable aid there are no pathognomonic signs. So far, diagnosis by means of gastroscopy has been the exception. Treatment is total or subtotal resection of the stomach and resection of omentum, most often with intensive roentgen treatment. Lymphosarcomas are exceedingly radiosensitive. Laparotomy is contraindicated only in the most advanced cases in cachectic patients. The excellent results now reported depend on intrepid radical intervention. Even advanced cases of so-called "inoperable carcinomas" call for exploratory laparotomy to rule out possible lymphosarcomas. Two cases recently treated in Randers Centralsykehus are described.

Semaine des Hôpitaux de Paris

29:3889-3954 (Dec. 6) 1953

New Data on Metabolism of Hemoglobin. H. Benard, A. Gajdos and M. Gajdos-Torok.—p. 3889.

*Psychosurgery for Intractable Pain: Based on 57 Cases. D. Petit-Dutaillil, R. Messimy and Mrs. L. Berges.—p. 3893.

Research on Individualization of Staphylococci: Application to Study of Staphylococcal Endemia. R. Turpin, J. Pillet, J. Calmels and Mrs. J. Pillet.—p. 3904.

Value of Phosphorus 32 in Treatment of Malignant Giant Follicular Lymphoma. H. Desgrez, R. A. Guérin, Mrs. M.-T. Guérin and F. Heitz.—p. 3910.

Psychosurgery for Intractable Pain.—It is emphasized that psychosurgery is definitely a last resort in cases of intractable pain. Prefrontal lobotomy, the technique most frequently used, can ameliorate pain in some cases, but rarely suppresses it definitively. Of this series of 57 patients, 43 were operated on for severe pain from neoplasms and/or metastases, 4 for cenesthopathia, 3 for sympathalgia, 2 for pain resulting from trauma to the brachial plexus, 1 for pain from a thalamic syndrome, 1 for pain from the stump of an amputation for osteomyelitis, 1 for causalgia from anesthetic leprosy, 1 for causalgia with edema following a fracture that was treated by means of a cast, and 1 for tabes with cystalgia. The authors have drawn the following conclusions. 1. Lobotomy done bilaterally in one operation, which was performed in 23 of the patients in this series, often yields good results. There are, however, serious disturbances in personality accompanying the relief of pain. There were three deaths attributable to intervention in this group. 2. Bilateral lobotomy in two stages, done in seven patients, did not yield as constant results in relieving pain. 3. Unilateral lobotomy, which was done 5 times on the right and 15 times on the left, often has a favorable result; but the effect is not so long-lasting as in the bilateral operation and it is often difficult to get the patient's family to accept another operation. The personality disorders often associated with this procedure were less severe and did not last so long as those following bilateral lobotomy. It was not possible to demonstrate a dominating analgesic effect, either homolaterally or contralaterally. 4. Excision of certain areas, or topectomy, was performed in seven cases; the results were only transitory, and the procedure was believed to have contributed to death in two aged, hypertensive patients. 5. In four of the patients in this series, lobotomy was done chemically rather than surgically. It should be done bilaterally, the authors feel, and they think it is of value for delicate patients. Studies ought to be made of this procedure's particular influence on personality. 6. It is believed that the analgesic effect caused by psychosurgery is due to its effect on the autonomic nervous system by means of a thalamohypothalamic disengagement. This would explain both the sensomotor and the psychoaffective changes that occur. After lobotomy, pain is better tolerated because the autonomic

nervous system has been brought down to a more primitive level, a level approximating that of children in whom, it is pointed out, the evolution of a cancer involves little or no pain. In three of the authors' patients, edema was reduced by psychosurgery, another fact in favor of the theory of a neurovegetative mechanism. This theory also accounts for the unusually good results obtained in the cases of sympathalgia and causalgia.

29:4171-4236 (Dec. 26) 1953. Partial Index

*Artificial Hibernation in Coronary Occlusion and Cardiovascular Surgery: Experimental Studies and Clinical Perspectives. C. Lian.—p. 4171.

*Pharmacoclinical Studies of Treatment with Acetyl-Digitoxin of Severe Forms of Asystolia and Rhythm Disturbances. Loeffler.—p. 4174.

Anticoagulant Medication in Myocardial Infarction and Angina Pectoris. M. Mouquin.—p. 4178.

Periarteritis Nodosa and Related Syndromes or "Disseminated Allergic Angitis." J. Roskam.—p. 4184.

Neurobiological Aspect of Several Large Vascular Syndromes. H. Laborit.—p. 4190.

Artificial Hibernation.—The experiments on dogs made by the author and his associates have led him to propose artificial hibernation for the treatment of three conditions in man—myocardial infarction with shock, myocardial infarction without shock, and angina pectoris of coronary origin. It was found that ordinary anesthesia could not prevent the death of dogs in which the coronary arteries were ligated, but a dog in an induced state of hibernation could survive this procedure. The author proposes to induce a state of hibernation in patients with myocardial infarcts who are in shock. Both pharmacodynamic agents, such as Largactil (dimethylamino-propyl-N-chlorophenothiazine hydrochloride), Phenergan (10-[2-dimethylamino-1-propyl]phenothiazine), and meperidine (Dolosal), and ice bags placed on the axillas and the groin would be used. This treatment would be both preventive and curative; it should preferably be done at the first sign of infarction. The dangers resulting from the hypotension of shock would be obviated by the reduction of the metabolic needs of the body as a whole. Pain would be suppressed, cardiac irritability diminished, and the cardiac rhythm slowed. The technique of therapy proposed for human beings is described in detail. The administration of vitamins and heparin is included in the treatment, which is to last four days. In the case of myocardial infarction without shock, only pharmacodynamic agents are used, along with heparin and etaphylline. A small number of patients has already been treated in this manner; the procedure had the great advantage of stopping immediately intense pain that had not yielded to morphine. Two of the drugs used in intravenous infusion or intramuscularly to induce complete or partial hibernation in the patients with infarcts, Largactil and Phenergan, could also be used in small daily oral doses for the prevention of angina attacks. Their sympatholytic action could presumably moderate the apparition or accentuation of coronary sclerosis and coronary spasm. In cardiovascular surgery, artificial hibernation can perform the same services that it does in general surgery. It permits of long periods of circulatory arrest without ventricular fibrillation and the loss of cerebral electric activity that ensues is purely temporary. It would seem, therefore, that the artificial heart and lung could either be dispensed with entirely or used in conjunction with artificial hibernation with hypothermia.

Acetyl-Digitoxin in Cardiac Dysrhythmia.—Acetyl-digitoxin was administered to 120 patients with severe cardiac insufficiency. Two-thirds of these patients were over 60 years old, and three-fourths of them presented one or several serious complications—thrombosis, pulmonary infarct, pneumonia, apoplexy, or Laennec's cirrhosis. Treatment with acetyl-digitoxin brought good results, particularly in all tachycardiac forms of cardiac insufficiency. The drug also proved valuable in bradycardiac forms, but it appears that less vagotropic agents would be preferable. Dosage of acetyl-digitoxin must be separately determined for each patient; rapid or slow saturations can be effected in more or less urgent cases. The drug is well tolerated. In the series reported, 43% of the patients had excellent results, 38% good results, and 19% no improvement. Other cardiotonics also gave poor results in this last group. The properties of acetyl-digitoxin place it pharmacologically between digitoxin and the glucosides of lanatose digitalis.

Minerva Ginecologica, Turin

5:589-628 (Sept. 30) 1953.

- New Methods for Staining Spermatozoa and Determining Live and Dead Cells. T. Bonadonna.—p. 589.
- Infusion of Concentrated Suspension of Red Blood Cells in Obstetrics and Gynecology. L. Milani and W. Torsiglieri.—p. 595.
- *Vitamin K₁ as Antidote to Drugs with Dicumarol-Like Effect: Clinical Observations. L. Gagliardi.—p. 598.
- Experimental Studies of Corticotropin Action on Genital Apparatus of Rats (*Mus Decumanus*) After Removal of Ovaries. P. Quaini and C. Durando.—p. 606.
- Gonadotropins in Cerebrospinal Fluid. E. Revelli.—p. 611.
- Use of Quaternary Bases of Ammonium as Antiseptics in Obstetrics and Gynecology. A. Massano and S. Monticelli.—p. 618.

Vitamin K₁ and Anticoagulant Therapy.—Synthetic vitamin K₁ (Konakion) was administered to four patients receiving Marcoumar (3[1'-phenyl-propyl]4-hydroxycoumarin) and three receiving ethyl biscoumacetate (Tromexan ethyl acetate). The good effects of the vitamin, which was given orally in doses of 10 to 12 mg., became evident in most instances six hours after its administration. In one patient receiving Marcoumar, the prothrombin time was shortened from 70 to 32 seconds in 10 hours and from 32 to 28 seconds in the next 24 hours. Twelve hours after the administration of a second 10 mg. dose of the vitamin, it was reduced to 23 seconds. Equally good effects were obtained in the other six patients. Similar results have been reported by American and English authors. They, however, had given their patients a single dose of 500 mg. of the vitamin, whereas Gagliardi never used more than from 10 to 24 mg. of it. Synthetic vitamin K₁ greatly improves the prognosis of patients receiving anticoagulants with a bishydroxycoumarin-like action, because with its administration the hemorrhagic complications secondary to this therapy can be prevented.

Minerva Medica, Turin

44:1421-1456 (Nov. 14) 1953

- Disorders of Intraventricular Conduction During Total Arrhythmia. V. Nazzi and A. Anselmino.—p. 1421.
- Pneumographic Investigation of Mediastinum. E. Valentino.—p. 1431.
- *Cortisone in Treatment of Tetanus. C. Cossali and A. Biella.—p. 1435.
- Aromatic Derivative of Mustard Gas in Treatment of Tuberculous Lymphadenitis: Preliminary Note. L. Costelli.—p. 1438.

Cortisone Therapy in Tetanus.—Three patients with tetanus were given cortisone as supplement to antitoxin serum and penicillin. Although the authors could not judge what part the hormone played in attenuating the course of the disease, they say that it did have a favorable effect on the clinical course and brought relief to the patients by rapidly lowering the elevated temperature, reducing the intensity and number of spasms, and improving the patients' vital sense and appetite. The first patient, a 5-year-old girl, was hospitalized with a diagnosis of meningitis. After the presence of tetanus was established, she was given antitoxin serum, penicillin, and cortisone. She received the hormone first in two 50 mg. injections and later in one 50 mg. injection daily for a total dose of 1,500 mg. She recovered in about two weeks. Antitoxin serum and penicillin were given to the second patient, a 17-year-old girl, but her already severe condition was aggravated by the therapy. Cortisone was then administered in doses of 200 mg. for one day, 100 mg. for 6 days, and 50 mg. for 14 days. There was a noticeable improvement with disappearance of the spasms and recovery. The severe infection had remained undiagnosed in the third patient, a 64-year-old man. After the correct diagnosis was established, massive therapy was instituted, and, in addition to antitoxin serum and penicillin, he was given 300 mg. of cortisone for three days, 200 mg. for seven days, 100 mg. for seven days, and 50 mg. for three days. This patient also recovered. The cortisone action was particularly evident in this case because patients in similar conditions who had been treated at the same hospital without cortisone died. According to the authors, this hormone potentiates the organism's means of defense and prevents their exhaustion thus enabling the specific defense systems to intervene and bring about the recovery. A definitive evaluation of the value of cortisone in the treatment of tetanus is, however, still premature.

Nordisk Medicin, Stockholm

50:1493-1526 (Oct. 29) 1953. Partial Index

- Athletic Heart. T. Sjöstrand.—p. 1493.
- Danger in Use of Morphine in Cor Pulmonale. S. Samuëlsson.—p. 1496.
- *Development of Low Salt Syndrome During Dehydration in Patients with Cardiac Decompensation. B. Harvald and P. Astrup.—p. 1499.
- Etiology of Cerebral Palsy. O. Scheel Thomsen.—p. 1504.
- Incidence of Bacterial Contamination in Vials Used in Hospital. O. Kylin and H. Ekstrand.—p. 1507.

Development of Low Salt Syndrome During Dehydration in Cardiac Insufficiency.—Harvald and Astrup discuss the danger of the development of secondary uremia in patients with cardiac insufficiency treated with mercurial diuretics and salt poor diet. They followed 16 patients during dehydration treatment consisting of one or two mersalyl injections (1-2 ml.) weekly in connection with a salt poor diet containing only a small amount of salt daily. Powerful dehydration therapy with salt poor diet can gradually lead to the so-called low salt syndrome. The subjective symptoms of salt depletion are fatigue, apathy, thirst, anorexia, general muscular weakness, muscular spasms, and tendency toward syncope. The syndrome is accompanied by reduced renal function and abnormally high blood urea concentration, usually also hypochloremia, and possibly hyponatremia and hyponatremia. On the development of the low salt syndrome the mersalyl medication must be stopped at once and sodium chloride given by the mouth, whereupon the symptoms disappear. When the blood urea and serum electrolyte concentrations are returned to normal the mersalyl treatment can be resumed. The diuretic effect of mersalyl is more dependent on the serum chloride concentration than on the serum sodium concentration. It is suggested that mersalyl affects the chloride resorption in the renal tubules, not, as usually assumed, the tubular resorption of sodium.

50:1595-1628 (Nov. 19) 1953. Partial Index

- *Anemia and Sideropenia After Gastrectomy. S. Wallensten.—p. 1601.
- Cortisone, Ascorbic Acid and Amyloid Formation: Clinical Considerations on Teilmann's Views Concerning Relation Between Them. G. A. Johansson.—p. 1605.
- *Lymphosarcomas of Stomach. J. Engberg.—p. 1610.
- Acute Abdominal Disorders Due to Meckel's Diverticulum. E. Christensen.—p. 1614.
- Perforated Duodenal Ulcer and Acute Abdominal Infections During Corticotropin/Cortisone Treatment. K. Hatteland.—p. 1616.

Anemia and Sideropenia After Gastrectomy.—Wallensten's 364 cases of gastroduodenal ulcer operated on (Billroth 2) at the Serafimerlasarett consisted of 281 cases of duodenal ulcer in 201 men and 80 women, of whom 205 were under 50, and 83 cases of gastric ulcer in 58 men and 25 women, of whom 35 were under 50. On follow-up examinations with reference to postoperative anemia Vahlquist's values of 13.6 gm. per 100 cc. for men and 11.5 gm. per 100 cc. for women were taken as normal. Postoperative hypochromic anemia was found to be common after Billroth 2. Pernicious anemia did not occur. There was a high percentage of sideropenia in these anemias. The longer the time after operation, the greater was the frequency of both anemia and sideropenia. The anemia was seen oftener in women operated on before the menopause than after it. According to earlier investigations anemia is infrequent in gastric and duodenal ulcers operated on according to Billroth 1. Billroth 1 is advocated as the method of treatment for gastric ulcer and duodenal ulcer in women, but in duodenal ulcer in men Billroth 2 should continue to be the procedure, since in these cases the danger of recurrence is greater after Billroth 1. The cases should be closely followed postoperatively with regular blood control and anemia compensated by iron intravenously as oral therapy is ineffective.

Lymphosarcoma of Stomach.—From 1 to 2% of the malignant tumors of the stomach are represented by mesenchymal tumors, fully half of which are lymphosarcomas. About 600 cases of these lymphosarcomas have now been published. Recent statistics, Engberg states, show that the five year survival rate after radical operation for lymphosarcoma of the stomach is high and increasing. The importance of diagnosis is stressed. It may be extremely difficult. To date correct preoperative diagnosis has been made in only a few cases, but with the pos-

sibility of lymphosarcoma of the stomach in mind in "atypical carcinomas" diagnosis should be possible much earlier. The tumors manifest themselves at any age but occur mainly at an earlier age than carcinomas and are somewhat more frequent in men than in women. The symptoms are vague and the course is slow. In fully 50% a large palpable tumor is found or at least a definite resistance in the epigastrium is felt on the first consultation. The absence of demonstrable ascites and metastases should suggest sarcoma. In a relatively young patient in good condition with a large epigastric tumor, demonstrable roentgenologic changes in the stomach, and long history, the diagnosis of lymphosarcoma should be considered. Benzidine tests in the feces are less constantly positive and achylia is less frequent than in carcinoma. While roentgen examination is a valuable aid there are no pathognomonic signs. So far, diagnosis by means of gastroscopy has been the exception. Treatment is total or subtotal resection of the stomach and resection of omentum, most often with intensive roentgen treatment. Lymphosarcomas are exceedingly radiosensitive. Laparotomy is contraindicated only in the most advanced cases in cachectic patients. The excellent results now reported depend on intrepid radical intervention. Even advanced cases of so-called "inoperable carcinomas" call for exploratory laparotomy to rule out possible lymphosarcomas. Two cases recently treated in Randers Centralsykehus are described.

Semaine des Hôpitaux de Paris

29:3889-3954 (Dec. 6) 1953

New Data on Metabolism of Hemoglobin. H. Benard, A. Gajdos and M. Gajdos-Torok.—p. 3889.

*Psychosurgery for Intractable Pain: Based on 57 Cases. D. Pettit-Dutaillis, R. Messimy and Mrs. L. Berges.—p. 3893.

Research on Individualization of Staphylococci: Application to Study of Staphylococcal Endemia. R. Turpin, J. Pillet, J. Calmels and Mrs. J. Pillet.—p. 3904.

Value of Phosphorus 32 in Treatment of Malignant Giant Follicular Lymphoma. H. Desgrez, R. A. Guérin, Mrs. M.-T. Guérin and F. Heitz.—p. 3910.

Psychosurgery for Intractable Pain.—It is emphasized that psychosurgery is definitely a last resort in cases of intractable pain. Prefrontal lobotomy, the technique most frequently used, can ameliorate pain in some cases, but rarely suppresses it definitively. Of this series of 57 patients, 43 were operated on for severe pain from neoplasms and/or metastases, 4 for cenesthopathia, 3 for sympathalgia, 2 for pain resulting from trauma to the brachial plexus, 1 for pain from a thalamic syndrome, 1 for pain from the stump of an amputation for osteomyelitis, 1 for causalgia from anesthetic leprosy, 1 for causalgia with edema following a fracture that was treated by means of a cast, and 1 for tabes with cystalgia. The authors have drawn the following conclusions. 1. Lobotomy done bilaterally in one operation, which was performed in 23 of the patients in this series, often yields good results. There are, however, serious disturbances in personality accompanying the relief of pain. There were three deaths attributable to intervention in this group. 2. Bilateral lobotomy in two stages, done in seven patients, did not yield as constant results in relieving pain. 3. Unilateral lobotomy, which was done 5 times on the right and 15 times on the left, often has a favorable result; but the effect is not so long-lasting as in the bilateral operation and it is often difficult to get the patient's family to accept another operation. The personality disorders often associated with this procedure were less severe and did not last so long as those following bilateral lobotomy. It was not possible to demonstrate a dominating analgesic effect, either homolaterally or contralaterally. 4. Excision of certain areas, or topectomy, was performed in seven cases; the results were only transitory, and the procedure was believed to have contributed to death in two aged, hypertensive patients. 5. In four of the patients in this series, lobotomy was done chemically rather than surgically. It should be done bilaterally, the authors feel, and they think it is of value for delicate patients. Studies ought to be made of this procedure's particular influence on personality. 6. It is believed that the analgesic effect caused by psychosurgery is due to its effect on the autonomic nervous system by means of a thalamohypothalamic disengagement. This would explain both the sensomotor and the psychoaffective changes that occur. After lobotomy, pain is better tolerated because the autonomic

nervous system has been brought down to a more primitive level, a level approximating that of children in whom, it is pointed out, the evolution of a cancer involves little or no pain. In three of the authors' patients, edema was reduced by psychosurgery, another fact in favor of the theory of a neurovegetative mechanism. This theory also accounts for the unusually good results obtained in the cases of sympathalgia and causalgia.

29:4171-4236 (Dec. 26) 1953. Partial Index

*Artificial Hibernation in Coronary Occlusion and Cardiovascular Surgery: Experimental Studies and Clinical Perspectives. C. Lian.—p. 4171.

*Pharmacoclinical Studies of Treatment with Acetyl-Digitoxin of Severe Forms of Asystolia and Rhythm Disturbances. Loeffler.—p. 4174.

Anticoagulant Medication in Myocardial Infarction and Angina Pectoris. M. Mouquin.—p. 4178.

Periarthritis Nodosa and Related Syndromes or "Disseminated Allergic Angiitis." J. Roskam.—p. 4184.

Neurobiological Aspect of Several Large Vascular Syndromes. H. Laborit.—p. 4190.

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BOOK REVIEWS

Injuries of the Spinal Cord. Edited by George C. Prather, M.D., F.A.C.S., and Frank H. Mayfield, M.D., F.A.C.S. Cloth. \$8.75. Pp. 396, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This monograph is written by a group of physicians who were responsible for the care of patients with injuries to the spinal cord in United States Army general hospitals during World War II. Patients with severe injuries are encountered occasionally in civilian practice, but it is only under unusual conditions such as war that a large number of cases are available for definitive study and prolonged therapy. The monograph was written to give the student and physician all of the information necessary for the diagnosis and management of these patients. The authors are all eminent specialists in their various fields. There is a brief chapter on history followed by discussions of the management of the patient in the acute and subacute phases, the neurosurgical and urological aspects, the problems of nutrition, associated injuries, the treatment of decubitus ulcers, and the management of the patient after the acute phase, with particular emphasis on rehabilitation. The authors have relied mainly on their own clinical experience in their presentation of the subject, but a fairly extensive list of references is appended to each chapter. The material is well presented. Indications for diagnostic procedure and therapeutic measures are clearly outlined. The printing is excellent and easily read. The figures are pertinent and clearly reproduced. There is an adequate index. The book should be of great value to students and physicians who are responsible for the care of these patients, particularly neurologists, neurosurgeons, orthopedists, and physiatrists.

The Radiology of Bones and Joints: An Introduction to the Study of Tumours and Other Diseases of Bone. By James F. Brailsford, M.D., Ph.D., F.R.C.P., Consulting Radiologist to Queen Elizabeth Hospital, Birmingham, England. Fifth edition. Cloth. \$19. Pp. 875, with over 725 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

This book is now in the fifth edition and is widely used by many radiologists in this country. Over the years the clinicians, the orthopedists, and the radiologists have had great difficulty in interpreting bone and joint disease as portrayed on the roentgenogram. With experience it is possible to make presumptive roentgenologic diagnoses that will include several conditions; for instance, the roentgenographic evidence of osteomyelitis may simulate the findings of a Ewing tumor. Often it is impossible to differentiate between the two by the roentgenologic examination alone, and it is only after correlating the roentgenologic with all the other findings, including the pathological findings, that a correct diagnosis is made and proper treatment is instituted. The author, because of his vast experience, has collected roentgenograms of many conditions, and a short discussion of these conditions is included in the text.

It is difficult to reconcile the following statement of the author with good medical practice: "The author acknowledges the great debt that we owe to clinicians and pathologists. . . . By correlation of the clinical with the histopathological and with radiography we have learned a great deal about the significance of radiographic appearances. . . . Why . . . submit the tuberculous and multitudinous other conditions to biopsy with all its risks in an attempt to secure 'confirmation'? The summations of reports from many sources on relatively limited knowledge do not add up to accuracy. The superficial resemblances of clinical, microscopical and radiological features of widely different lesions do not permit a sound teaching by 'atlas' methods." There are bone conditions in which a correct

diagnosis can be made from the roentgenogram, but there are many other important lesions in which every possible aid is needed, including microscopic studies of excised tissues.

The author's descriptions are largely radiological; little consideration is given to the lesions producing the radiological appearances, and there are certain subjects, such as meningiomas, that receive only meager comment. On the other hand, this book includes a wealth of information, which should be helpful to the radiologist. The format of the book is good. The type is easy to read, but the illustrations unfortunately are mostly positive roentgenograms. The author is to be congratulated on the index. It is refreshing to be able to turn to an index of a medical book and find the subject sought.

What You Should Know About Mental Illness. By Orin Ross Yost, M.D., Medical Director, Edgewood Sanitarium Foundation, Orangeburg, S. C. With foreword by Nolan D. C. Lewis, M.D., introduction by Leland E. Hinsie, M.D., and note by Norman Vincent Peale, D.D. Cloth. \$3.50. Pp. 165. Exposition Press Inc., 386 Fourth Ave., New York 16, 1953.

Dr. Yost has written a most readable little book. Although he is a prominent figure in the field of psychiatry, he has by no means written this book specifically for psychiatric consumption. In considering the Baconian tripartite division of books, "some to be tasted, some to be chewed, and some few to be swallowed and digested," this present work is neither superficial enough to be accorded the first nor profound enough for the last. This is neither a reference book nor a textbook or manual but an honest plea for a better understanding of mental illness, coupled with suggestions for a community-minded drive toward better mental health. It suffers by comparison with Halliday's striking analyses but has perhaps the merit of "getting through" to a larger cross section of the interested reading public. Dr. Yost says nothing that the psychiatrist and psychologist does not already know and has not already said, but his approach is more in accord with the popularizing trend in scientific literature. The scientist may be mildly startled by such a folksy script writer technique as is seen at the beginning of chapter 1: "Our plane was speeding westward across the continent. Only a few short hours before, we had left the airport in New York, and we were already a short distance beyond Chicago, the Windy City. Glancing idly at a newspaper which a fellow passenger had offered to share with me, my eye fell on a headline that arrested my attention: 3,548,000 Babies Born Last Year. It was an official figure from the Bureau of the Census. I saw in my mind's eye those squirming, laughing, crying, cooing infants—a cross section of the America of tomorrow. Among them would be all sorts of babies—yellow, red, white, black; long babies, short babies, chubby and thin ones, all kinds and conditions of babies—our country's most precious resource."

Fortunately his mind's eye is rapidly cleared of the "chubby and thin ones" and he goes on to a clear and lucid exposition of mental function from topographical, dynamic, and economical viewpoints, with a wealth of apt illustration and example. He pays compliment to the roles of various important socioenvironmental factors—the mother, the teacher, and the community. This is followed by a necessarily concise but accurate discussion of psychopathology in terms that enlighten but do not in the process disturb. It is difficult to see why the more technical procedures of psychotherapy and psychosurgery are interpolated between psychopathology and discussion of such conditions as alcoholism, drug addiction, epilepsy, and suicide, but perhaps Dr. Yost was using the social impact of such phenomena to lead up to his final chapters on social responsibility and the interrelationship between psychiatry and religion. This book should do much to stimulate the desire to approach the literally awful problem of mental illness on the grand scale that is so urgently required. The suggestions that he makes are valuable and positive, and his book renders a definite service to community and national needs.

Sexual Behavior in the Human Female. By Alfred C. Kinsey, Wardell B. Pomeroy, Clyde E. Martin, and Paul H. Gebhard, Research Associates, Institute for Sex Research, Indiana University, Bloomington. Cloth, \$8. Pp. 842, with 155 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; W. B. Saunders Company, Ltd., 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

There are few works published in the last decade that have excited as much comment and argument as "Sexual Behavior in the Human Female." Because of this controversy THE JOURNAL ignored its usual practice of submitting a book for review to one person; in this instance two persons, both widely known in their fields, have been asked for reviews.—ED.

A great deal has been written and said about the Kinsey reports on the sexual behavior of the human male and female. For some reason the title of this book bears the earmark of a neologistic twist, for it reads: "Sexual Behavior in the Human Female." Attention is called to this not because a carping thrust at Kinsey and his collaborators is intended but rather to point up a certain aspect of Kinsey's thinking that interferes with the clarity of his scientific attitude. There is no doubt that Kinsey's general approach is scientific. There is no doubt that his approach suffers from a number of defects and that it also enjoys, in many respects, the credit of validity of any serious scientific undertaking. What seems lacking in Kinsey's approach, however, is a true awareness of the fact that we are dealing with a complex psychobiological phenomenon. Behavior in the human female is not a phenomenon but a semantic artifact. Behavior is a part of the human being, and it is the manifestation of a complexity called a personality. Neither biology nor medical psychology would place objective behavior within a person.

If Kinsey had deliberately and overtly left out of consideration the psychological aspects of the problem on which he worked, there would be reason for regretting such an omission, but one would not quarrel with the omission. It is the privilege of the research worker to limit his field of investigation in any manner he wishes. The trouble is that Kinsey does not leave out human psychology but deals with it almost in the manner of a nonscientific layman who tries to give authoritative voice to his prejudices. This is a defect of serious importance.

Kinsey thus states almost glibly: "Freudian hypotheses of psychosexual development proceeding, as a rule, from narcissistic (masturbatory) interests and activities to interests in other individuals whose bodies are similar (the homosexual interests), and finally to interests in individuals who are physically different (the heterosexual interests), are not substantiated by the preadolescent or adolescent histories of either the females or the males in the sample" (page 109). The above is not an accurate presentation of the Freudian hypotheses, nor does it include the central points of Freudian considerations—the evolution of the love affects that accompanies the evolution of psychosexual development, an evolution that culminates normally in object love and the striving toward parenthood. To omit love and the inner aspiration to become a parent is to omit that which makes the human (male or female) human. Leave love out of consideration and you have no sexual behavior, but only a manifestation of the physiological reaction of the sexual organs and their adnexa. Modern biology has no more right than modern medicine to exclude the human elements from the human being—for the totality of the psychobiological unit that is man is not overlooked today either by the practicing physician or by the medicopsychological research worker.

Then, too, one wonders how it happens that Kinsey feels justified in stating that the above-mentioned Freudian hypotheses "are not substantiated by the preadolescent or adolescent histories of either the females or the males in the sample." How did Kinsey go about verifying these hypotheses about the evolution of the human personality, which lies primarily in the sphere of the unconscious? It is as if one observed carefully a flight of birds and then stated that Newton's formulation about the laws of gravity is not substantiated in the sample of flying ducks.

There seems to be a lack of understanding of such psychosexual phenomena as "vaginal orgasm"—Kinsey shows the common tendency to look for specific innervations, which is not too hopeful an attitude from the standpoint of scientific understanding of the phenomenon. After all, in dealing with sexual issues we are considering a supercharged human instinct that is responsible for the greatest artistic inspirations and most heinous

crimes in human history. And yet Kinsey looks upon it all with the simple eye of an old-fashioned behaviorist making rather trite and general references to learning and conditioning.

He seems to encourage masturbation (page 263) and overestimate the physiological, sensual orgasm without considering the psychological factors that might inhibit the healthiest neuromuscular apparatus and leave a sense of affective vacuum even after the most intense physiological orgasm. Clinically we may observe this in patients with neuroses and involution psychoses (particularly in women). The whole field of clinical considerations seems to escape Kinsey, and his apparent biases lead him to such striking statements as this, for instance: "It should, however, be emphasized again that most of the husbands who accepted or encouraged their wives' extra-marital activity had done so in an honest attempt to give them the opportunity for additional sexual satisfaction" (page 435). Of course the above statement is both sweeping and inconclusive, for it omits the consideration of human affects and overlooks the simple clinical fact that the alleged good will of the singularly permissive husbands in question is in itself a sign of a serious clinical condition with which the practicing psychiatrist is not unacquainted.

It is difficult to rid one's self of the impression that from the clinical, psychobiological point of view Kinsey's latest book is not very scientific and that he falls frequently into the same formalistic, pseudoscientific trap that characterized the classical Greeks and the Arabs like Avicenna, who considered love an illness because it produced a flushed face and an accelerated pulse. When Kinsey speaks of some "physiological effects," his approach is almost that of the ancients who disregarded love and overestimated the orgasm as an end in itself (page 171 or 166).

One cannot but admire the perseverance and tenacity with which Kinsey sticks to his work, but from the medicopsychological point of view he does dehumanize both the human male and the female. And he does this despite the best perspectives offered by modern medical psychology—all this even if we leave entirely out of consideration the question of traditional morality and sex.

(Second review)

The present volume constitutes the second progress report on the study of human sex behavior that has been under way for 15 years at the University of Indiana. Dr. Kinsey and his associates have had charge of this project, which has been supported by the Rockefeller Foundation through the Committee for Research on Problems of Sex of the National Research Council. It has been a fact-finding survey in an attempt to discover what people do sexually, what factors account for their patterns of sexual behavior, how their sexual experiences have affected their lives, and what social implications there may be in each type of behavior.

The data in this volume are based on personal interviews with 5,940 white women from a total of almost 8,000 women who were interviewed. Much criticism has been directed against the selection of the persons who comprise this study, for they are not necessarily representative of our female population. The investigators acknowledge this defect in their material and note that a better sampling was not possible because they had to make use of those volunteers who presented themselves. They obtained detailed information about the lives of the women who were interviewed and their various sex practices. The questions concerned masturbation; nocturnal sex dreams; premarital petting; premarital, marital, and extramarital coitus; and homosexual responses. All of these forms of sexual gratification were brought together to provide a pattern of the total sexual outlet of the groups of women who were studied. The data are presented in a series of tables at the end of each chapter and illustrated by many simple graphs. The historical, social, moral, religious, and emotional implications are discussed fully. There are extensive references to the old and current literature, which are presented in footnotes throughout the text.

The last five chapters are devoted to the anatomy, physiology, and the neural mechanism of the sexual response and orgasm. The psychological and hormonal factors that may influence the sexual act are discussed. The male and the female are compared in these pages, and the authors suggest that there are no great differences between the sexes except that psychological factors probably play a more important role in men than in women. A comprehensive bibliography is included.

This report is a detailed, careful, scientific analysis of a fairly large sampling of our feminine population. Together with the report on the human male, many pertinent facets of human sexual behavior are presented. Although the groups investigated may not be representative of our population and the implications may not be valid for any one person or group of persons, the data are the best available at present. This book does not qualify as a sensational sex thriller but does represent a scientific report of a study still in progress, which is being diligently pursued by a group of experts well qualified to carry on this project. This book and its companion volume on the male should be read by physicians, educators, sociologists, and all others who are seriously interested in human sexual behavior.

Handbuch der Inneren Medizin. Begründet von L. Mohr und R. Staehelin. Herausgegeben von G. v. Bergmann, W. Frey, und H. Schwiégk. Fünfter Band, Teile 1-3: Neurologie. Redigiert von R. Jung. Teil 1, bearbeitet von R. Brun, et al. Teil 2, bearbeitet von P. E. Becker, et al. Teil 3, bearbeitet von E. Bay, et al. Fourth edition. Cloth. 656 marks; subscription price, 524.80 marks. Pp. 1543, with 591 illustrations; 966, with 286 illustrations; 1531, with 388 illustrations. Springer-Verlag, Reichpietschauer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1953.

This section on neurology of the "Handbook of Internal Medicine" is within the great tradition of the German scientific handbooks. Although less extensive than Foerster's famous "Handbuch der Neurologie," it devotes about 3,000 pages to a discussion of clinical neurology and to its anatomic and physiological foundations. About 25 authors share in this work, which has been carefully edited by R. Jung. Each contribution is provided with an extensive bibliography listing monographs and special papers and with numerous figures. The quantity of these illustrations is indicated by the fact that the chapter on arteriography has 49 figures. In general, the whole field has been reviewed objectively, without eliminating the special flavor of individual articles that is based on the particular experience of the writer. The Anglo-American literature is extensively utilized. There is a detailed author and subject index, and the printing and binding are excellent. The work is highly recommended as an authoritative review of theoretical and clinical neurology.

Volume 1 contains essays on the general physiology of the nervous system; the general anatomy, physiology, and pathology of peripheral nerves and symptoms resulting from their disorders; the spinal cord; the autonomic nervous system; and the brain. The second volume describes neurological methods (clinical and laboratory); medical and surgical therapy; and the diseases of peripheral nerves, spinal cord, autonomic nervous system, and muscles. This volume also includes a special article on multiple sclerosis. The third volume deals with circulatory disturbances and inflammatory diseases of the brain; syphilis, trauma, and tumors; diseases of the brain stem, extrapyramidal system, and cerebellum; epilepsy and related conditions; and symptomatic psychoses and neuroses.

The Symptoms and Treatment of Acute Poisoning. By G. H. W. Lucas, Professor of Pharmacology, University of Toronto, Toronto, Ontario. Cloth. \$4. Pp. 308. The Macmillan Company, 60 Fifth Ave., New York 11, 1953.

This book was written to provide practicing physicians with a ready reference for treating patients who have been poisoned. The subjects considered include supplies and apparatus, emetics and gastric lavage, poisonings in children, collections and preservation of samples for analysis, useful drugs and preparations, and cases of poisoning. A most noteworthy addition is the chapter on poisonings in children, since this always presents a special problem to the physician. In addition a table of approximate equivalents, domestic measures, etc., and a table of fatal doses are included. The book is complete as to the number of toxicologic agents discussed. The index is easy to consult. Trade names are used along with the generic names, and in the index the trade names have been placed in italics together with an abbreviation for the name of the manufacturer. The book can also be used as a practical handbook on the symptoms and treatment of acute poisoning by dentists, nurses, and pharmacists. This is a useful addition to the literature of toxicology.

Side Effects of Drugs. By L. Meyler. Translated by Ph. Vuijsje and W. Mulhall Corbet. Cloth. \$5.50. Pp. 268. Elsevier Press, Inc., 402 Lovett Blvd., Houston 6; 155 E. 82nd St., New York 28; 118 Spuistraat, Amsterdam C, Netherlands, 1952.

This reference book lists the side-effects that may occur after the therapeutic administration of drugs. It provides the practicing physician with a handy and somewhat extensive guide to determine whether unexpected symptoms are the result of the disease or are actually the side-effects of the drug. The book includes most compounds in common use. The drugs are classified according to their therapeutic properties. Two special chapters are devoted to metals and metalloids and one to serums and vaccines. The book is well documented and contains an extensive bibliography at the end of each chapter. The index is well arranged and complete. The author has included very little critical evaluation of the side-effects discussed. That the incidence of occurrence of the side-effects is not indicated is another drawback. In this age of antibiotics and chemotherapy, however, this handy reference should prove of unestimable value.

Influenza and Other Virus Infections of the Respiratory Tract. By C. H. Stuart-Harris, M.D., F.R.C.P., Professor of Medicine, University of Sheffield, Sheffield, England. With foreword by C. H. Andrewes, M.D., F.R.C.P., F.R.S., Deputy Director, National Institute for Medical Research. Cloth. \$6. Pp. 235, with 98 illustrations. (Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2); Edward Arnold & Co., 41-43 Maddox St., London, W.1, 1953.

Acute viral infections of the respiratory tract are a greater problem than ever in clinical practice because of the success of antibiotics and sulfonamides in overcoming bacterial infections. In this book a distinguished English authority successfully differentiates what is known about influenza, virus pneumonia, and other common respiratory diseases from what is still nebulous and vague. Influenza receives the most attention, both because of its importance as a potential killer and because of knowledge already gained by concerted clinical, epidemiological, and laboratory investigations. In addition, there are several informative and instructive chapters on the common cold, febrile catarrh, atypical pneumonia, psittacosis and ornithosis, Q fever, and laboratory diagnosis. This book contains much valuable information and is highly recommended to specialists and general practitioners alike.

Advances in Virus Research. Volume I. Edited by Kenneth M. Smith and Max A. Lauffer. Cloth. \$8. Pp. 362, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1953.

The effective dissemination of the results of virus research has suffered greatly through the lack of journals primarily devoted to this field. This is particularly true with fundamental investigations of the nature and immediate characters of the viruses themselves, the reports of which are scattered widely in publications not often consulted except by specialists in the basic sciences. In this volume an attempt is made to present each year timely reviews of progress in the study of those properties of viruses that establish their place in the biological, physical, and chemical worlds. The first volume contains an absorbing account of the insect viruses effectively illustrated by electron micrography by G. H. Bergold. A fertile field of contemporary research is that of virus multiplication. The work of this character on bacteriophages is reviewed by Epstein, and that with the influenza virus is considered exhaustively by Henle. The general problems and results of virus purification are discussed by Sharp. The properties and functions of nucleic acids in viruses are described by Markam. The phenomenon of interference between viruses resulting in protection against or suppression of infection of one by the other is reviewed by Bennett, and the transmission of plant viruses by insect vectors, the leaf hoppers, is recounted by Black. A comprehensive account of the properties of the poliomyelitis virus relative to types, culture, growth, immunologic properties, and gamma globulin prophylaxis is given by Melnick. The reviews are excellent, and the series of publications within a few years should provide a highly concentrated source of the principal findings in the nature and properties of viruses.

QUERIES AND MINOR NOTES

DISCOID LUPUS ERYTHEMATOSUS

TO THE EDITOR:—A married woman, aged 37, has had discoid lupus erythematosus for 15 years. She received treatment at several clinics, all to no avail. Quinacrine (Atabrine) therapy was begun on April 10, 1953, and the dose was increased from 50 to 150 mg. daily. All lesions blanched and the subjective symptoms, such as stinging and burning, disappeared. There have been occasional short attacks of nausea, vomiting, and diarrhea. She is now taking a maintenance dose of 75 mg. of quinacrine daily, and, while there has been a moderate return of redness to the lesions, there has been neither burning nor induration. How long may this maintenance dose be given?

George M. Kest, M.D., Port Huron, Mich.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—In general, in an attempt to avoid toxic reactions in quinacrine (Atabrine) therapy of discoid lupus erythematosus, a rest period is given sometime during the course of treatment. The weight loss, diarrhea, and nausea in this patient are reactions to quinacrine, although not serious ones. It is recommended that the maintenance therapy be discontinued for three to four weeks if the skin lesions are doing well. The blood cell counts and urinalyses should be done even during this rest period, for sometimes the toxic reactions may be delayed. Chloroquine diphosphate is less toxic than quinacrine and may be substituted for quinacrine at the end of this rest period in a dosage of 250 mg. twice a day or even only once a day for a period of several months. If the skin lesion is under good control, then all therapy may be stopped unless a flare-up occurs. If the patient's lesions usually flare-up in spring, then a preventive routine of 250 mg. of chloroquine diphosphate may be started early in March. If an active flare-up occurs, 250 mg. four times a day may be given. Routine blood cell counts and urinalyses should be done also in chloroquine diphosphate therapy.

ANSWER.—The drug may be given as long as necessary if the patient is observed at frequent intervals for signs of intolerance. Perhaps it would be well to change to chloroquine which is less toxic than quinacrine, beginning with 0.25 gm. three times daily for a while then reducing to an effective maintenance dose.

HIRSUTISM AT THE CLIMACTERIC

TO THE EDITOR:—I have seen two cases of lanugo-type hair on the faces of two women, aged 40. One apparently had a short period of functional bleeding and the other was approaching the climacteric. Could you suggest a differential diagnosis?

M.D., Maine.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—It has long been thought, and with good evidence, that the pilary system is controlled by the endocrine glands such as the gonads, thyroid, anterior pituitary, and adrenal cortex. It is not surprising therefore that some hirsutism should appear at the time of the climacteric. Idiopathic hirsutism of a permanent character has also been observed after puberty and pregnancy as a genetic characteristic and after diseases such as mumps, encephalitis, neuritis, and multiple sclerosis. Certain drugs such as diphenylhydantoin (Dilantin)

and testosterone may produce transient hirsutism. Since there was no evidence of any of these factors nor of endocrine gland tumors in either of these two cases, it may be assumed that the hairs are associated with the menopause.

ANSWER.—It is not uncommon for facial hirsutism to develop in women approaching the climacteric. The mechanism of this excessive hair growth is not very well understood. Diminution of estrogen secretion by the ovaries may be responsible for it; however, the administration of estrogen does not influence the hair growth to any marked degree. Estrogen-containing facial creams have been used with some slight success. Apparently, the androgens secreted by the adrenal cortex control hair growth, and it is difficult to influence the secretion of these androgens. In a differential diagnosis of the condition, the investigation should center around the function of the adrenal cortex, and a 17-ketosteroid determination would reveal whether there is excessive androgen secretion. Not uncommonly a slight or even moderate increase in excretion of 17-ketosteroids is found in this condition. Only when a great excess is found should procedures aimed at removing portions of the adrenal cortex be considered. Another theory regarding the development of hair growth in women implicates the theca cells of the ovary, which elaborate an androgen. This, however, is speculative at the present time, and it is only in cases of arrhenoblastoma that ovarian tissue is known to elaborate androgens.

NUMBNESS OF HANDS IN PREGNANCY

TO THE EDITOR:—I frequently encounter pregnant women who complain of numbness and tingling of the hands. Others complain of a painful stiffness of the fingers, especially in the morning, that improves with use during the day. At times there is a slight swelling of the hands and temperature changes are noted. These patients all have had adequate calcium and vitamin intake, and the sodium and water balance has not been deemed a factor. All symptoms have spontaneously disappeared during the puerperium. What is the cause and treatment of this condition?

Fred S. Taber, M.D., New Brunswick, N. J.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Stiffness of the joints and slight swelling of the hands are not unusual in pregnancy and during the premenstrual period. They are due to the sodium retention that attends these states, and accordingly they ordinarily respond to sodium restriction or ammonium chloride. There is no good explanation for the more troublesome paresthesias of the hands that are occasionally seen during pregnancy, and these usually follow the distribution of the ulnar nerve. Large doses of vitamins, especially the vitamin B complex, have been given without notable effect. Salt is restricted and ammonium chloride given (often with indifferent effect) on the possibility that edema at the nerve roots may be the cause. The patient who complains of continuous burning, aching pain that precludes the use of the hands should be suspected of having a serious underlying vascular or neurological disturbance and should be investigated with this in mind. Such symptoms are not among the changes of normal pregnancy.

ANSWER.—Numbness and tingling of the hands during pregnancy are forms of neuritis, the exact cause of which is not known. The condition disappears shortly after delivery. In many cases no treatment is necessary, but moist or dry heat, salicylates, codeine, and niacin may be helpful. The treatment of this form of neuritis is identical with that in nonpregnant patients.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

POLIOMYELITIS AT A SUMMER CAMP

TO THE EDITOR:—*I am chairman of the medical committee of a summer camp for children. The camp consists of a common dining room and a series of bunks. In the event one of the campers contracts poliomyelitis, should all the children be quarantined or only those who resided in the same tent, the ill camper? Should any campers be allowed to return home? When should other children be allowed to come in as new campers? What period of time should be allowed later for adults to come to camp as campers?*

M.D., Ohio.

ANSWER.—The child stricken with poliomyelitis may be removed to a hospital with the consent of the proper health authorities. All other children should be confined to the camp for two weeks. There should be daily medical inspection, and, if any evidence of illness develops, the patient should be isolated. New children should not be accepted at the camp. Adults at the camp should be advised to remain. It is generally believed the danger of poliomyelitis is not diminished by leaving a camp where the disease has occurred. Local health regulations may interfere with children returning to their homes. No new campers should be admitted until at least two weeks have elapsed since the last case of poliomyelitis developed. It would be advisable to allow a period of one week to elapse after all children had left the camp before admitting adults. During that time a thorough sanitary inspection should be made of the premises. Food supplies, water, milk, and insects should receive consideration. The foregoing advice is based largely on Recommendations of the Illinois Department of Public Health issued in June, 1953.

CHRONIC ULCERATIVE COLITIS

TO THE EDITOR:—*A 19-year-old girl has had chronic ulcerative colitis for several years. Eight months ago she was operated on for an anal fistula. Since the operation, there has been practically no healing in the perineal wound despite adequate drainage and no connection with the anal canal or rectum. Suggestions of means to promote wound healing in this case will be appreciated.*

M.D., New York.

ANSWER.—The fistulous tract originally must have been connected with the lower bowel that was the site of chronic ulcerative colitis. Operative repair often involves the failure of the wound to heal because of infected material constantly lavaging the anal area and because of impaired vitality of the tissue. Clinical remission of chronic ulcerative colitis does not necessarily mean cessation of the pathological process in the colon. This may be determined by mucosal aspiration wet smear, using a heavy bore capillary tube inserted through the sigmoidoscope. A purulent cytological material in the mucosal exudate is indicative of active intramural infection. Cutting into or through such an infected area involves the hazard of poor healing, since drainage is not merely of the former fistulous tract but of the colon itself. In some instances, fecal matter may be seen in the wound because of a persistent opening in the rectum or anal canal. Operative interference should be avoided, if at all possible, for perianal conditions complicating chronic ulcerative colitis. Ischiorectal abscess is infrequent but usually must be treated surgically.

The following treatment is suggested for this patient: (1) good supportive therapy, including a high caloric, high protein diet; (2) administration of 250 to 500 mg. of ascorbic acid three times a day; (3) microcrystalline sulfathiazole powder sprinkled into the wound once or twice daily after it has been cleaned with 50% hydrogen peroxide; and (4) active immunization against the flora recovered from the wound, usually coli and enterococcus organisms. If these measures fail after 10 weeks, a short circuiting of the fecal stream (ileostomy) usually has to be done. After a second 10 week period, failure to heal may necessitate a total colectomy. Ileostomy or subtotal or total colectomy should not be undertaken lightly; they are by no means absolute solutions in chronic ulcerative colitis. On the other hand, a number of patients, such as the girl described in the query, have improved after local administration of microcrystalline sulfathiazole and conservative supportive therapy.

SMALL TUMOR NEAR HYOID BONE

TO THE EDITOR:—*A 50-year-old man suddenly discovered a small tumor in the region of the hyoid bone a bit to the right. It is about 1 in. in diameter and hard, but is asymptomatic. The diagnosis is probably a thyroglossal cyst. Do you advise removal of the cyst? What symptoms and signs could develop?*

M.D., Rhode Island.

ANSWER.—The most likely diagnosis of a round midline or near midline lesion at the level of the hyoid bone is thyroglossal cyst. It may appear at any age but usually appears in patients younger than 50. The commonest complication of thyroglossal cyst is obstruction. The mass could be an adenoma of the thyroglossal tract or even a carcinoma. There are lymph nodes in this vicinity, and it could be metastatic from a primary tumor in the thyroid below. It is quite unlikely that the roentgenogram will reveal anything significant. Since its diagnosis is uncertain, the removal of the tumor should be advised.

HAND-SCHÜLLER-CHRISTIAN DISEASE

TO THE EDITOR:—*A girl with Hand-Schüller-Christian disease died at age 4 after about three years of illness. The two healthy siblings, aged 8 and 10. The parents and other child but are afraid it might be affected. Is Hand-Schüller-Christian disease hereditary?*

Hubert W. Coleman, M.D., Avon Park, Fla.

ANSWER.—There is no evidence that lipid histiocytosis of cholesterol type (Hand-Schüller-Christian disease) is hereditary. The odds of another child being affected are so small that they do not represent an appreciable risk.

GLUCOSE SOLUTION INTRAMUSCULARLY

TO THE EDITOR:—*I would like to comment on the answer to the query on the administration of glucose solutions intramuscularly on page 100 of THE JOURNAL, Jan. 2, 1954. While sloughing will not occur if 5 or 10% glucose solutions are given intramuscularly, a temporary shift of electrolytes and some fluid into the area of injection will occur. Because of the resulting lowered electrolyte concentration in the extracellular compartment, a further transfer of water to the intracellular phase will occur. These shifts result in a depletion of the plasma and interstitial fluid that may lead to serious consequences.*

It has been shown that hypotension and oliguria may occur as a result of the decrease in the plasma volume (10 to 30%) that follows hypodermoclysis of 2,000 ml. of a 5% glucose solution in distilled water. Therefore, I feel it especially undesirable and dangerous to give glucose in water in amounts up to 80 ml. per kilogram of body weight, particularly when the patient is dehydrated or if hyaluronidase is employed. Since a considerable decrease in the plasma volume has been noted after 35 to 40 ml. of glucose in water has been given per kilogram of body weight by hypodermoclysis to normal patients, it would seem unwise to administer electrolyte-free fluids to dehydrated patients by this method. While hyaluronidase causes the fluid to spread, or diffuse, throughout a larger area, relieving pain and causing a more rapid absorption, it also accelerates the shift of electrolytes. Thus, although the undesirable shift of fluid that leads to a diminution in the plasma volume is of shorter duration, its effect is more profound when hyaluronidase is employed. For a better understanding of the dangers of administering electrolyte-poor fluids by hypodermoclysis, the following references should be consulted (*Surgery* 52:305, 1952; *Surgical Forum: Proceedings of the Forum Sessions of the 37th Clinical Congress of the American College of Surgeons*, 1952, Philadelphia, W. B. Saunders Company, 1952, pp. 559-564; *J. A. M. A.* 150:942 [Nov. 1] 1952 and *J. A. M. A.* 151:644 [Feb. 21] 1953).

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